December 1988

FINAL

ENVIRONMENTAL IMPACT REPORT

Appendices

1988 Revision to the Air Quality Management Plan

South Coast Air Quality Management District

Southern California Association of Governments

APPENDIX A

NOTICE OF PREPARATION

South Coast
AIR QUALITY MANAGEMENT DISTRICT
9150 FLAIR DRIVE, EL MONTE, CA 91731 (818) 572-6200

January 20, 1988

NOTICE OF PREPARATION

TO:

FROM: South Coast Air Quality Management District
9150 Flair Drive
El Monte, CA 91731

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report on the Air Quality Management Plan Revision

The South Coast Air Quality Management District will be the Lead Agency and will prepare an environmental impact report for the Revision to the Air Quality Management Plan. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR when considering decisions affecting air quality.

The project description, and the probable environmental effects, are contained in the attached materials. A copy of the Initial Study is attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but no later than 30 days after receipt of this notice. Please send your response to Brian Farris at the address shown above. We will need the name for a contact person in your agency.

A public scoping session on the proposed EIR for the Air Quality Management Plan Revision will be held in accordance with the provisions of the California Environmental Quality Act. This meeting is scheduled as follows:

Date: Monday, February 22, 1988
Time: 9:00 a.m. to noon
Place: McCandless Auditorium
SCAQMD Headquarters
9150 Flair Dr.
El Monte, CA 91731

NOTICE OF PREPARATION
(continued)

Public and agency comments and recommendations in the scope and content of the EIR will be accepted at the meeting.

Brian W. Farris
Sr. Air Quality Specialist
Planning Division
(818) 572-2152

AIR QUALITY MANAGEMENT PLAN REVISION
INITIAL STUDY

PROJECT DESCRIPTION

Emission Reduction Objectives

The revised Air Quality Management Plan (AQMP) will contain strategies designed to meet the federal ambient air quality standards by the year 2007 in the South Coast Air Basin. The following table shows the projected baseline air emissions growth from 1985-2007, and the required emission reductions needed to meet the federal standards.

TABLE I

EMISSION REDUCTIONS REQUIRED
TO MEET STANDARDS
(Rounded to Nearest 10 tons per day [t/d])

Pollutant	Baseline Emissions 2007,t/d	Component of Emissions Due to Growth 1985-2007,t/d	Allowable Emissions to Meet Federal Standards,t/d	Additional Emissions Reductions Beyond Baseline to Meet Federal Standards in 2007,t/d
ROG	1010	240	250	760
NOx	910	270	470*	440*
SOx	180	40	40*	140*
CO	3280	1030	2100	1180
PM_{10}	1130	350	500	630

*Reflects emission reductions beyond those needed to meet NO_2 and SO_2 standards; these reductions are needed to meet the PM10 standards.

Emission Reduction Strategies

Three tiers of strategies will be necessary to meet the emission reduction objectives of the AQMP. These tiers are organized according to increasing level of difficulty in implementation and, in Tier Three, are dependent on technological breakthroughs. These tiers are shown in the following sections:

Tier One - Full Scale Implementation of Known Technology.

Tier One strategies are an aggressive implementation of known technologies in a traditional regulatory approach. Implementation of all these measures can begin within five years of plan adoption.

TABLE II
TIER ONE - CURRENTLY AVAILABLE CONTROL STRATEGIES

Activity Category	Key Control Approaches
Passenger Vehicles	Improved Inspection/Maintenance Expanded certification procedures Tightened vehicle emissions standards Use of methanol and electric-powered vehicles Trip reduction programs Traffic flow improvements
Freight Vehicles	Use of newer, less polluting engines Institution of Inspection/Maintenance program Use of methanol or other clean fuels Transportation System Management Stricter diesel fuel standards
Residential/ Recreational	Reductions in use of photochemically reactive consumer solvents Controls on off-road vehicles Controls on powered equipment Use of water-borne paints and coatings
Other Mobile/Farming	Changes farming practices Controls on construction equipment Controls on aircraft, ships, and trains
Manufacturing	Clean fuel substitution Expanded controls on degreasing operations Controls on aircraft, ships, and trains
Manufacturing	Clean fuel substitution Expanded controls on degreasing operations Controls on type or use of surface coatings Elimination of exemptions
Petroleum Production and Marketing	Electrification of oil production Stricter controls on operations Substitution of gasoline vehicles with clean-fuel vehicles Lowering of gasoline volatility
Electric Power Production	Selective Catalytic Reduction (SCR) Process modification Alternative methods of production Greater use of out-of-Basin production
Service/Commerce/ Other	Substitution of electric motors Controls on restaurant charbroiling Use of dry-to-dry cleaning machines Eliminating exemptions Controls on large bakery ovens

It is estimated that Tier One strategies could reduce emissions below baseline between now and the year 2007 by the following amounts: ROG, 340 tons/day; NOx, 400 tons/day; SOx, 70 tons/day; PM_{10}, 320 tons/day, and CO, 1500 tons/day.

Tier Two - Advancement of Known Technology

Tier One strategies will bring the Basin toward attainment, but additional strategies will be needed to further reduce emissions. The following Tier Two strategies will not require technological breakthroughs but will, in some cases, require new technological applications not currently on the market.

More importantly, the new technological applications will require more widespread usage than the regulations have required to date. Tier Two emission reduction strategies, including transportation measures, will require a strong public commitment. These strategies are shown in the following table:

TABLE III
TIER TWO-STRATEGIES INVOLVING
ADVANCEMENT OF KNOWN TECHNOLOGY

Activity Category	Key Control Approaches
Passenger Vehicles	Transportation Control Measures to keep travel at current level 40% penetration of clean fuel vehicles
Freight Vehicles	70% penetration of clean fuels Freight forwarding and other distribution improvements Greater reliance on rail transport
Residential/ Recreational	Low emission building codes Emission fees for new housing units Further reductions in use of photochemically reactive consumer products Further off-road vehicle regulation
Manufacturing	Offset program to ensure no growth in emissions Coating application by robotics, ultraviolet curable coatings, and catalytic curable coatings Fuel cells Emission fees
Petroleum Production	Export tax or similar measure to discourage transport of District-refined petroleum products outside of Southern California

Tier Two strategies can result in estimated additional emission reductions of 240 tons/day of ROG, 60 tons/day of NOx, 50 tons/day of SOx, 370 tons/day of PM_{10} and 460 tons/day of carbon monoxide. The application of Tier Two controls, when combined with the Tier One strategies, will result in the necessary reductions in all pollutants except ROG. In order to meet the ozone standard, ROG must still be reduced by an estimated 180 tons/day within the next 20 years (from 430 tons/day of the remaining inventory to 250 tons/day).

Tier Three - Technological Breakthroughs Required

Actions necessary to attain the remaining ROG reductions required to meet the ozone standard exceed current known technologies, even in the most aggressive applications. Tier Three efforts are intended to achieve these reductions and may provide a means to reduce some of the impacts of Tier Two strategies.

The Tier Three approach requires major technological advancements or massive investments in infrastructure. These strategies, shown on Table IV, rely on new technologies such as superconductors and electrical storage devices, and the building of new, or elimination of existing, infrastructures.

TABLE IV
TIER THREE STRATEGIES
AND ASSOCIATED EMISSION REDUCTION POTENTIAL

Strategy	MAXIMUM REDUCTION BELOW BASELINE EMISSIONS IN YEAR 2007, TONS/DAY				
	ROG	NOx	SOx	PM_{10}	CO
a. Full electrification of all motor vehicles and stationary combustion sources.	160	320	40	35	1760
b. Elimination of ROG from solvent and surface coatings where no substitute materials are now known.	450	-	-	-	-
c. Abatement of remaining dust generation by 75 percent.	-	-	-	700	-

ENVIRONMENTAL CHECKLIST FORM

I. Background

1. Name of Proponent: South Coast Air Quality Management District

2. Address and Phone Number of Proponent:

   9150 Flair Dr.

   El Monte, CA 91731 818/572-2152

3. Date of Checklist Submission:

4. Agency Requiring Checklist: South Coast Air Quality Management District

5. Name of Proposal, if applicable: Air Quality Management Plan Revision

II. Environmental Impacts

(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

	YES	MAYBE	NO
1: Earth. Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures.			X
b. Disruptions, displacements, compaction or overcovering of the soil?			X
c. Change in topography or ground surface relief features?			X
d. The destruction, covering or modification of any unique geologic or physical features?			X
e. Any increase in wind or water erosion of soils, either on or off the site?			X
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?			X

	YES	MAYBE	NO
g. Exposure of people or property to geological hazards such as earthquakes, landslides, mud-slides, ground failure, or similar hazards.			X
2: Air: Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?		X	
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally			X
3. Water: Will the proposal result in:			
a. Changes in currents, or the course or direction of water movements, in either marine or fresh waters?			X
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?		X	
c. Alterations to the course of flow of flood waters.			X
d. Change in the amount of surface water in any water body.			X
e. Discharge into surface waters or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?		X	
f. Alteration of the direction or rate of flow of ground waters?			X
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X
h. Substantial reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?			X

	YES	MAYBE	NO
4. Plant Life: Will the proposal result in:			
a. Change in the diversity of species or number of any species of plants (including trees, shrubs, grasses, crops, and aquatic plants)?	____	X	____
b. Reduction of the numbers of any unique, rare or endangered species of plants?	____	X	____
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	____	X	____
d. Reduction in acreage of any agricultural crop?	____	X	____
5. Animal Life: Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects)?	____	X	____
b. Reduction of the numbers of any rare or endangered species of animals?	____	X	____
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	____	X	____
d. Deterioration to existing fish or wildlife habitat?	____	X	____
6. Noise: Will the proposal result in:			
a. Increases in existing noise levels?	____	X	____
b. Exposure of people to severe noise levels?	____	X	____
7. Light and Glare: Will the proposal produce new light or glare?	____	X	____
8. Land Use: Will the proposal result in a substantial alteration of the present or planned land use of an area?	X	____	____

	YES	MAYBE	NO
9. Natural Resources: Will the proposal result in:			
a. Increase in the rate of use of any natural resources?	X		
b. Substantial depletion of any non-renewable natural resource?		X	
10. Risk of Upset: Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation) in th event of an accident or upset conditions?		X	
11. Population: Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?	X		
12. Housing: Will the proposal affect existing housing, or create a demand for additional housing?	X		
13. Transportation/Circulation: Will the proposal result in:			
a. Generation of substantial additional vehicular movement?			X
b. Effects on existing parking facilities or demand for new parking?			X
c. Substantial impact upon existing transportation systems?	X		
d. Alterations to present patterns of circulation or movement of people and/or goods?	X		
e. Alterations to waterborne, rail or air traffic?	X		
f. Increase in traffic hazardous to motor vehicles, bicyclists or pedestrians?			X
14. Public Services: Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			

	Yes	MAYBE	NO
a. Fire protection?		X	
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?		X	
e. Maintenance of public facilities, including roads?	X		
f. Other governmental services?	X		
15. Energy: Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?	X		
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	X		
16. Utilities: will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?	X		
b. Communications systems?	X		
c. Water?		X	
d. Sewer or septic tanks?			X
e. Storm water drainage?		X	
f. Solid waste and disposal?	X		
17. Human Health: Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?		X	
b. Exposure of people to potential health hazards?		X	
18. Aesthetics: Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?			X

	YES	MAYBE	NO
19. Recreation: Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
20. Archeological/Historical: Will the proposal result in an alteration of a a significant archeological or historical site, structure, object or building?			X
21. Mandatory Findings of Significance:			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X		
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief definitive period of time while long-term impacts will endure well into the future.)			X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant).	X		
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X	

III. Determination

On the basis of this initial evaluation:

_____ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

_____ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

__X__ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date: 1/20/88

(Signature)

For: South Coast Air Quality Management District

DISCUSSION OF ENVIRONMENTAL IMPACTS

2. Air

Emission controls, alternate energy sources and solvent substitutions may cause changes in emission characteristics. These changes need analysis and possible mitigation.

3. Water

Water use or discharges from pollution control systems, infrastructure modifications, or solvent substitutions may cause impacts requiring mitigation.

More frequent street washing to control particulate matter emissions could impact surface runoff rates and water quality.

4. Plant Life; 5. Animal Life; 6. Noise; 7. Light and Glare

The AQMP impact analysis will use the latest available population and land use forecasts from the Southern California Association of Governments. AQMP implementation may impact and modify planned future growth patterns. These unplanned changes may, in turn, adversely impact the above items in terms of changes or reductions in open space, increased population densities, and concomitant increases in noise, light and glare.

8. Land Use

Changes in building codes, emissions fees, transportation related measures, and infrastructures will probably affect current and future land use patterns.

9. Natural Resources

Natural resource use, primarily energy, will change and some demands may increase due to changes in industrial equipment, production controls, substitute solvents, changed fuel types, and large scale industrial and transportation equipment electrification.

10. Risk of Upset

Ammonia used in SCR, possible substitute solvents or other new control technologies or reagents may be accidentally released under upset conditions.

11. Population

Potential population changes will probably be related to land use and transportation changes. Population is forecast to grow dramatically, but not as a result of this project. Distribution patterns could be altered as a result of plan implementation.

12. Housing

Low emission building codes and new emission fees may increase costs, change population patterns, housing types, and densities.

13. Transportation

Significant transportation measures in the AQMP relating to vehicle flow, vehicle miles travelled, fuels, vehicle types, and freight movement will affect all forms of land, air, and water-borne transportation. Transportation patterns will be altered to meet the Plan's objectives with consequent, potentially significant, impacts.

14. Public Services

Changes in emissions controls, land use, vehicular movements and infrastructure will create new and different demands on essential public services.

15. Energy

Changes in energy use, especially in the substitution of clean fuels and electrification, will cause the development of new energy sources, with consequent impacts.

16. Utilities

Changes in the utilities infrastructure are expected, resulting from energy changes, transportation measures, land use changes, and potential waste disposal requirements of pollution control equipment.

17. Human Health

The public may be exposed to toxic hazards from pollution control equipment, solvent substitution, new fuels, or infrastructure modifications.

19. Recreation

Recreational opportunities may be impacted by changes in population densities, open space or transportation brought about by the plan. Again, the AQMP is not a population growth plan, but may affect urban land use patterns.

21. Mandatory Findings of Significance

The project has the potential to degrade the quality of the environment by possibly causing changes in certain air contaminants; modifying planned land uses; consuming natural resources, creating a risk of upset; affecting surface water quality; and causing increased energy use.

Many of these impacts are individually limited but cumulatively considerable. This will hold true for impacts to the same environmental media (such as additive air impacts) and cross-media impacts (such as impacts on land use caused by transportation control measures to reduce air emissions).

The indicated significant environmental impacts could have adverse human health impacts either through individual impacts (such as possible toxic releases from emission control equipment) or cumulatively if the impacts on different environmental media reinforce each other. These effects could be either direct or indirect.

Economics

Economic impacts do not appear on the checklist form, but will be analyzed for their potential impacts. Adverse economic impacts may lead to physical impacts on the region. These impacts may result from population or industrial activity changes caused by the economic consequences of the strategies. These changes may modify the region's economic base, which may have physical environmental implications.

EFFECTS FOUND NOT TO BE SIGNIFICANT

The following areas were determined to not have the potential to be significantly impacted by the AQMP.

1. Earth

The project itself, or its secondary impacts, does not appear to have the potential to impact earth resources. Those changes to the earth that will be caused by land use actions are only very indirectly related to the plan. The plan will tend to cause increases in land use intensities and reduce pressures to urbanize non-urban land.

18. Aesthetics

Plan implementation is expected to improve aesthetics by improving visibility through reducing air emissions.

20. Archeological/Historical

The plan and its direct or indirect impacts are not expected to impact heritage resources. Induced changes in urbanization patterns may have some impacts, but these are unforeseeable at this time. Potential impacts may not be significant given protections currently in place for these resources.

POTENTIAL ENVIRONMENTAL BENEFITS OF THE PROJECT

The AQMP is designed to provide for strategies to meet the federal ambient air quality standards within twenty years. Therefore, it can be expected to have environmental benefits as well as potential impacts. These benefits will not be examined in the Draft EIR, but are briefly listed below.

- Air quality improvement, which will result in improvements to:
  - Public Health
  - Longevity of materials
  - Agriculture and plant life
  - Aesthetics, especially visibility
- More efficient land use patterns and transportation systems.
- More efficient use of natural resources and energy.
- Significant progress toward the attainment of state ambient air quality standards.

APPENDIX B

MAILING LIST OF PERSONS AND ORGANIZATIONS RECEIVING DEIR

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

LIST OF PEOPLE WHO TESTIFIED AT EACH AQMP PUBLIC HEARING

SAN BERNARDINO, WEDNESDAY, OCTOBER 12, 1988

	Name	Title/Association
1.	Barbara Riordan	Sup. San Bernardino County
2.	Don Blose	American Lung Assoc.
3.	Joel Rosen	City of Fullerton
4.	Karen Rasmussen	CA Trucking Assoc.
5.	Kevin Cooper	Hadley Auto Transport/ CA Trucking Assoc.
6.	Greg Owen	CA Trucking Assoc./ Tri-Modal Dist. Ser.
7.	Jane Darby	League of Women Voters
8.	Michael Wang	West. Oil & Gas Assoc. (WOGA)
9.	WJ Fassler	Chevron USA, Inc.
10.	Terry Moore	Inland Empire Economic Council (IEEC)
11.	Harvey Eder	Ex. Dir. Pub. Solar Power Coalition
12.	Lloyd Zola	Ontario Chamber of Commerce

JOHN MUIR JR. HIGH SCHOOL, SATURDAY, OCTOBER 22, 1988

	Name	Title/Association
1.	Rae Wishom	Minority Coalition for Responsible Growth
2.	Robert Paternaster	City of Long Beach
3.	Otter Meril Johnson	Raymond and Neighborhood Assoc.
4.	Ryan Snyder	Individual
5.	Richard Adams	Coalition Against the Pipeline
6.	Dan Garcia	Minority Coalition for Responsible Growth
7.	Ingrid Markul	League of Women Voters Regional Task Force, Air Quality Committee
8.	Edward Spaulding	Chevron USA
9.	Gilbert H. Bishop	Individual
10.	Rosenell R. Dynes	Gramercy Place Block Club
11.	Gabor Urban	Individual
12.	Sebie S. Brown	Individual
13.	Sebie S. Brown for Marion Bone	Individual
14.	Jackie Freedman	Culver City
15.	Cheryl Turner	Individual
16.	Joyce Leslie	Individual
17.	Harvey Eder	Public Solar Power Coalition
18.	Robert Farrel	Councilman/City of Los Angeles

GLENDALE, MONDAY, OCTOBER 24, 1988

	Name	Title/Association
1.	Pamela Popovich	American Lung Association of CA
2.	Tom Flavin	Econ. Devel. Corp/L.A. County
3.	Marc Christiansen	So. Cal. Gas Co.
4.	Stanley Hart	Sierra Club
5.	Robert Peterson	Individual
6.	Owen Olpin	O'Melveny & Myers for Special Events
7.	Allison Fuller	League of Women Voters
8.	Jeb Stuart	Keep Riverside Ahead
9.	Edward H. Waldheim	Individual
10.	David J. O'Reilly	Chevron
11.	Douglas Henderson	WOGA
12.	Terry Moore	Inland Empire Economic Council (IEEC)
13.	Jeffrey N. Jones	Sierra Club
14.	Herbert Spencer	Individual
15.	Ray Remy	L.A. Area Chamber of Commerce
16.	Phyllis Kenney	League of Women Voters
17.	Sandra Kersley	Individual
18.	Richard Adams	Coalition Against the Pipeline
19.	Jordan Tergerson	Member Cit. for Better Env.
20.	Steve Glaser	Sierra Club, Angeles Chapter Air Quality Committee
21.	Kim Abel	Individual

GLENDALE, MONDAY, OCTOBER 24, 1988
(continued)

22.	Bonnie Holmes	Sierra Club
23.	Richard Kahlenberg	Individual
24.	Ken Applegate	Individual
25.	David Harbaugh	Individual
26	Bryan Allen	Individual

PALM DESERT, TUESDAY, OCTOBER 25, 1988

	Name	Title/Association
1.	Jean Benson	Mayor Pro Tem City of Palm Desert
2.	William Arenstein	Member, Indian Wells City Council, appearing on behalf of Coachella Valley Association of Governments
3.	Buford Crites	Member, Palm Desert City Council, representing CVAG
4.	Daniel L. Ehrler	Palm Desert Chamber of Commerce
5.	Bruce Clark	Coachella Valley Water District
6.	John Lavender	Palm Desert Disposal Service, Inc.
7.	Gail Biondi	League of Women Voters
8.	George L. Stanton	PACFREEZ
9.	Dr. Harry Levine	Individual
10.	Marion Henderson	President, Desert Beautiful Inc.
11.	Hank Clark	Individual
12.	Don Liebling Frank	Individual
13.	William Massengil	American Lung Association
14.	Alan Layton	Sun Fuel
15.	Rheo Lawman	Individual
16.	Marcie Blatt	Desert Beautiful
17.	Don Frank	Individual

RIVERSIDE, WEDNESDAY, OCTOBER 26, 1988

	Name	Title/Association
1.	Don Baskett	City Councilman, Hemet Riverside County Transportation Comm.
2.	James Poss	Sierra Club
3.	Stephen Albright	Keep Riverside Ahead
4.	George Lauer	Atlantic Richfield Co.
5.	Fred Harris	Individual
6.	Greg Ballmer	Individual
7.	Hearing Officer Schmued for Douglas Weiford	Riverside City Manager
8.	Sandra MacGregor	League of Women Voters
9.	Ernestine Barrett	League of Women Voters
10.	Virginia Field	Clean Air Now
11.	Virginia Field	Clean Air Now
12.	Truman Jock	SCAG

SANTA ANA, THURSDAY, OCTOBER 27, 1988

	Name	Title/Association
1.	Donn Hall	Mayor, City of Costa Mesa
2.	Pat McGuigan	Councilwoman, City of Santa Ana League of California Cities
3.	Lida Lenney	Councilwoman, City of Laguna Beach
4.	Craig Buell	City of Newport Beach, Planning Dept.
5.	Jan Chatten Brown	L.A. District Attorney's Office
6.	Kim Dexter	City of Garden Grove
7.	Dana Ohanesian	City of Garden Grove
8.	Jan Chatten Brown	Coalition for Clean Air
9.	Joel W. Rosen	City of Fullerton
10.	Kristine Thalman	City of Anaheim
11.	Steve Forsberg/ Jack Broadbent	California Manufacuturers Association
12.	Marilyn Dewitt	League of Women Voters
13.	William Gayk, Ph.D.	County of Orange
14.	Donald Hanley	Unocal
15.	Beth Leeds	Save Our Shores - Orange County
16.	Eve Somjen	City of Irvine
17.	LCDR F.L. McClain	U.S. Coast Guard
18	Stephen Rhodes	California Energy Commission
19.	Scott Stevens	County Sanitation Districts of Orange County
20.	Edward Woolsey	Industrial Environmental Coalition of Orange County
21.	Marielle Leeds	Laguna Green Belt
22.	Lou Bintz	Western Liquid Gas Assoc.
23.	Bill Lawrence	Building Industry Assoc. of Calif.

SANTA ANA, THURSDAY, OCTOBER 27, 1988
(continued)

24.	Mike Hertel	Southern California Edison
25.	Ronald J. Swofford	Shell Oil Co.
26.	Ed Spaulding	Chevron U.S.A.
27.	Robert Stockdale	Western Oil and Gas
28.	Shirrey Lee Meddick	Individual
29.	Allan Krosner	Individual
30.	Alan B. Rice	Individual
31.	Samuel Hanna	Individual
32.	Lori Aunan	Individual
33.	Malcolm K. Sauls	Summit Home Owners Assoc.
34.	Robert Confair	Students Against the Vanishing Environment (S.A.V.E.)
35.	Flora Lu	(S.A.V.E.)
36.	Ward Elliott	GASP, Coalition for Clean Air
37.	Timothy F. Thompson	Individual
38.	Carolyn Wood	Individual
39.	Wm. Mondschein	Individual
40.	Sean Olson	S.A.V.E.
41.	Stella Wells	Individual
42.	Terry Fitzgerald	City of Duarte
43.	Gerhard Peters	Individual
44.	Sandra Kersley	Individual
45.	Scott Anderson	Individual
46.	Kristy Wise	Individual
47.	Harvey Eder	Solar Power

Written Statements Submitted for the Record at the Hearing

1.	Terry A. Moore	President, IEEC
2.	Gary C. Beck	Precision Standard Time Inc.
3.	Maryanne Jones	Manager, Transportation Div.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

LIST OF WRITTEN COMMENTS SUBMITTED
FOR AQMP/DEIR PUBLIC HEARING RECORD
(AS OF NOVEMBER 9, 1988)

[* Indicates also testified at Public Hearing]

CITIES LOS ANGELES COUNTY	DATE
City of Agoura Hills, Planning & Comm. Devel.	8-05-88
City of Claremont, Dept. of Comm. Devel.	8-09-88
City of Claremont, City Manager	10-27-88
City of Commerce, Planning	9-19-88
Culver City, Municipal Services Director	8-22-88
Culver City*, City Planner	10-27-88
City of Cypress, City Manager	10-20-88
City of Gardena, Planner	10-25-88
City of La Mirada, City Manager	10-20-88
City of La Verne, City Hall	8-19-88
City of Long Beach*, City Manager	8-12-88
City of Long Beach, The Port of Long Beach	11-02-88
City of Los Alamitos, City Manager	9-16-88
City of Los Angeles, City Plng. Comm.	5-04-87
City of Los Angeles, City Planning Comm.	8-29-88
City of Manhatten Beach, Mayor	10-24-88
City of Paramount, City Manager	11-03-88
City of Pomona, Community Development Dept.	10-27-88
City of Pomona, Public Works Dept.	10-27-88
City of Rolling Hills, Mayor	10-6-88
Temple City, Mayor	9-23-88
City of Vernon, Mayor	8-30-88
City of West Covina, Mayor	8-11-88
City of West Hollywood, (informal), Mayor	-
Los Angeles Memorial Coliseum Commission	8-19-88

CITIES ORANGE COUNTY	DATE
City of Anaheim, City Manager	8-22-88
City of Anaheim*, Mayor	10-20-88
City of Brea, City Manager	11-08-88
City of Buena Park, City Manager	9-06-88
City of Buena Park	10-26-88
City of Costa Mesa, City Manager	8-10-88
City of Costa Mesa, Mayors Office	9-7-88
City of Fullerton, Development Services Dept.	8-09-88
City of Fullerton, Development Services Dept.	8-15-88
City of Fullerton, Mayor	9-28-88
City of Fullerton*, Development Services Dept.	10-12-88
City of Garden Grove, City Manager	10-13-88
City of Irvine*, City Manager	8-15-88
City of Irvine, City Manager	10-18-88
City of La Habra, City Manager	8-09-88
City of Newport Beach*, City Manager	10-18-88
City of Placentia, City Administrator	8-12-88
City of Placentia, City Administrator	10-19-88
City of San Juan Capistrano, City Manager	10-17-88

City of Santa Ana, City Manager	8-12-88
City of Santa Ana, City Manager	10-27-88
City of Seal Beach, City Manager	9-15-88
City of Stanton, City Manager	10-17-88
City of Tustin, Mayor	10-27-88
City of Tustin, Planning Commissioner	11-1-88
City of Westminster, City Manager	10-13-88

CITIES RIVERSIDE COUNTY	DATE
City of Corona, City Manager	8-8-88
City of Moreno Valley, Planning Director	10-27-88

CITIES SAN BERNARDINO COUNTY	DATE
City of Chino, Community Devel. Dept.	7-29-88
City of Chino, Councilmen Sawhill	10-26-88
City of Fontana, Planner	8-12-88
City of Fontana, Planner	8-31-88
City of Ontario, City Planner	8-11-88
City of Ontario, City Planner	10-17-88
City of San Bernardino, Mayor	10-31-88
City of South Gate (informal)	-

HOSPITALS	DATE
Antelope Valley Hosp. Medical Center	9-14-88
Brotman Medical Center	9-28-88
Corona Community Hospital	9-24-88
Desert Hosp.	9-19-88
Downey Community Hospital, Rehabitation Center	9-20-88
Downey Community Hospital	9-23-88
Eisenhowen Memorial Hosiptal	9-22-88
Hi Desert Medical Cneter	10-3-88
La Habra Community Hospital	9-13-88
Verdugo Hills Hopsiptal	9-12-88
Verdugo Hills Hopsiptal	9-16-88
California Medical Center of Los Angeles	9-15-88
Hospital Council of Southern California	8-30-88

CHAMBERS OF COMMERCE	DATE
Los Angeles Area Chamber of Commerce*	8-15-88
Van Nuys Area Chamber of Commerce	10-14-88

COUNTY	DATE
County of Los Angeles, Board of Supervisors	10-21-88
County of Los Angeles, Chief Administrative Office	9-12-88
County of Los Angeles, Chief Administrative Officer	10-26-88
County of Los Angeles, Department of Public Works	8-11-88
County of Los Angeles, Sanitation Districts	10-27-88
County of Los Angeles Transportation Commission	8-12-88
County of Los Angeles, Transportation Commission	8-15-88
County of Los Angeles, Transportation Commission	10-27-88

County of Los Angeles, Transportation Commission	10-31-88
County of Orange, Supervisor Harriet Wieder	9-7-88
County of Orange, John Wayne Airport	8-15-88
County of Orange, Planning*	10-24-88
County of Orange, Sanitation Districts*	10-27-88
County of Orange, Transportation Commission	8-17-88
County of Riverside, Transportation Commission*	8-17-88
County of San Bernardino, Air Pollution Control District	7-12-88

FEDERAL GOVERNMENT	DATE
U.S. Department of the Army	10-03-88
U.S. Department of Transportation, United States Coast Guard*	10-26-88

REGIONAL GOVERNMENT	DATE
Coachella Valley Water District	10-26-88
Las Virgenes Municipal Water District	8-26-88
Los Angeles Memorial Coliseum Commission	8-16-88
Metropolitan Water District of So. Cal.	10-27-88
Southern California Association of Governments	8-25-88
Southern California Rapid Transit District	8-18-88
Southern California Rapid Transit District	11-03-88

STATE GOVERNMENT	DATE
Assemblyman Ross Johnson	9-12-88
California Energy Commission	10-27-88
California Public Utilities Commission	11-08-88
Department of Housing and Comm. Devel.	9-02-88
Department of Transportation	10-04-88
Department of Transportation, Dist. 12	10-24-88
Governor's Office of Planning and Research	10-27-88

INDIVIDUALS	DATE
Paul C. Able	-
Bryan Allen	10-24-88
Mr. & Mrs. Harvey Barrett	10-27-88
Tony Debellis	-
Marc Drehsen	10-7-88
Judith Freed	8-8-88
Alison C. Fuller	8-1-88
Margaret V. Hadstrom	10-25-88
Scott Herbertson	-
A. Jabbour	10-18-88
Mr. & Mrs. Newell Johnson	10-26-88
Betty-Jean Lamb	10-23-88
Jack Lynn	-
Barbara Mauz	10-27-88
Ruth Neilson	9-2-88
R.A. Nichols Engineering	10-7-88
Ed Salisbury	8-7-88

Daniel Silver. M.D.	8-10-88
Norri Sirri	-
Wanda Sterner	-
Residents of Rancho Mirage & Coachella Valley	10-24-88
Janis Tuzzolino	10-27-88
Jordon Torgerson	10-26-88

ORGANIZATIONS/ASSOCIATIONS	DATE
Air Transport Association of America	8-12-88
Air Transportation Association of America	10-15-88
American Gas Association	10-25-88
American Gas Association, L.J. Swift	-
American Lung Association of California	8-15-88
Building Industry Association of So. Cal.*	8-12-88
Building Industry Association of So. Cal.	9-9-88
Building Industry Association of So. Cal.	10-27-88
California Council for Environmental and Economic Balance	8-15-88
California Council for Environmental and Economic Balance	10-27-88
California Fabricare Institute	8-24-88
California Manufacturers Association*	8-31-88
California Manufacturers Association, So. Cal. Air Quality Alliance	8-15-88
California Manufacturers Association, So. Cal. Air Quality Alliance	11-02-88
California Solar Energy Industries Assoc.	10-10-88
Chemical Specialties Manufacturers Assoc.	10-27-88
Coalition Against the Pipeline*	7-11-88
Coalition for Clean Air*	10-27-88
Federation of Labor, AFL-CIO	10-28-88
Group Against Smog Pollution	10-27-88
Highway Carriers Association	7-7-88
Homeowners of Encino	8-8-88
The Inland Empire Economic Council*	7-5-88
The Inland Empire Economic Council	10-4-88
The Industrial Environmental Coalition of Orange County	10-27-88
O'Melveny & Myers, On Behalf Of, The Special Event Centers*	10-27-88
Olympic Chiropractic Office	10-24-88
Planning Directors Association of Orange County	10-24-88
Sierra Club-Angeles Chapter*	8-08-88
Sierra Club-Angeles Chapter	10-15-88
Sierra Club-Angeles Chapter	10-27-88
Sierra Club-Angeles Chapter	11-02-88
Source Reduction Research Institute	10-4-88
Special Events Centers/Organizations	10-24-88
University of California, Riverside	10-25-88
Valley Industry and Commerce Assoc.	10-31-88
Western Oil & Gas Association*	10-27-88
Zero Population Growth	7-12-88

CORPORATIONS	DATE
Anaheim Stadium	10-27-88
ARCO, LA Refinery	10-26-88
Auto Chek	10-27-88
Blue Diamond Materials	10-11-88
Brookfield Productions, Inc., Norman Brooks	11-9-88
Brookfield Productions, Inc., Fern Field	10-25-88
Brookfield Productions, Inc., Jeanne Troy	10-25-88

Chevron USA Inc.	8-15-88
Chevron USA Inc.*	8-19-88
Chevron USA Inc.	10-21-88
Chevron USA Inc.	10-26-88
Chevron, at Carson	9-28-88
Commuter Transportation Services, Inc.	11-10-88
The Irvine Company	8-19-88
Kirkhill Rubber Company	-
Knott's Berry Farm	10-27-88
Luster Cote	8-8-88
MESA	7-6-88
McDonnell Douglas	10-26-88
Mobile Oil Co.	10-27-88
Olympic Chiropractice Office	10-24-88
San Diego Gas & Electric Company	-
Shell Oil Company*	10-27-88
Six Flags Magic Mountain	10-26-88
Southern California Gas Company*	8-16-88
Southern California Gas Company	10-88
Southern California Gas Company	10-01-88
Southern California Gas Company	10-24-88
Southern California Gas Company	10-27-88
Southern California Edison Company	8-15-88
Southern California Edison Company	10-27-88
Southern California Rapid Transit District	11-03-88
Texaco Refining and Marketing Inc.	10-27-88
Unocal Corporation*	10-27-88
The Walt Disney Company	10-27-88

GOVERNMENT LIST ORANGE COUNTY

CITY OF ANAHEIM
PLANNING DEPT.
P.O. BOX 3222
ANAHEIM, CA 92803

CITY OF BUENA PARK
DIRECTOR OF PLANNING & BLDG.
6650 BEACH BLVD.
BUENA PARK, CA 90621

CITY OF COSTA MESA
DIRECTOR OF DEVELOPMENT SERVICES
P.O. BOX 1200
COSTA MESA, CA 92628

CITY OF FOUNTAIN VALLEY
PLANNING DIRECTOR
10200 SLATER AVE.
FOUNTAIN VALLEY, CA 92708

CITY OF FULLERTON
DIRECTOR OF DEVELOPMENT SERVICES
303 WEST COMMONWEALTH AVE.
FULLERTON, CA 92632

CITY OF GARDEN GROVE
DEVELOPMENT SERVICES DIRECTOR
11391 ACACIA PARKWAY
GARDEN GROVE, CA 92640

CITY OF HUNTINGTON BEACH
DIRECTOR OF DEVELOPMENT SERVICES
P.O. BOX 190
HUNTINGTON BEACH, CA 92648

CITY OF IRVINE
DIRECTOR OF COMMUNITY DEVELOPMENT
P.O. BOX 19575
IRVINE, CA 92713

CITY OF LA PALMA
CITY ENGINEER
7822 WALKER STREET
LA PALMA, CA 90623

CITY OF LOS ALAMITOS
DIRECTOR OF PUBLIC SERVICES
3191 KATELLA AVE.
LOS ALAMITOS, CA 90720

CITY OF NEWPORT BEACH
DIRECTOR OF PLANNING
3300 NEWPORT BLVD.
NEWPORT BEACH, CA 92663

CITY OF ORANGE
DIRECTOR OF PLANNING AND
DEVELOPMENT SERVICES
300 EAST CHAPMAN AVE.
ORANGE, CA 92666

CITY OF PLACENTIA
DIRECTOR OF DEVELOPMENT SERVICES
401 EAST CHAPMAN AVE.
PLACENTIA, CA 92670

CITY OF SAN CLEMENTE
COMMUNITY DEVELOPMENT DIRECTOR
100 AVENIDA PRESIDIO
SAN CLEMENTE, CA 92672

CITY OF SANTA ANA
PLANNING DIRECTOR
20 CIVIC CENTER PLAZA
SANTA ANA, CA 92701

CITY OF SEAL BEACH
DIRECTOR OF PLANNING
211 EIGHTH STREET
SEAL BEACH, CA 90401

CITY OF STANTON
COMMUNITY DEVELOPMENT DIR.
10660 WESTERN AVENUE
STANTON, CA 90680

CITY OF TUSTIN
COMMUNITY DEVELOPMENT DIRECTOR
300 CENTENNIAL WAY
TUSTIN, CA 92680

CITY OF VILLA PARK
CITY MANAGER
17855 SANTIAGO BLVD.
VILLA PARK, CA 92667

CITY OF WESTMINISTER
PLANNING DIRECTOR
8200 WESTMINISTER AVENUE
WESTMINISTER, CA 92683

CITY OF YORBA LINDA
COMMUNITY DEVELOPMENT DIRECTOR
P.O. BOX 487
YORBA LINDA, CA 9268

COUNTY OF ORANGE
ENVIRONMENTAL MANAGEMENT AGENCY
P.O. BOX 4048
SANTA ANA, CA 92702-4044

COUNTY OF ORANGE
DIRECTOR, EMA
12 CIVIC CENTER PLAZA
SANTA ANA, CA 92702

COUNTY OF ORANGE
ORANGE COUNTY ADMIN. OFFICER
10 CIVIC CENTER PLACE
SANTA ANA, CA 92701

ORANGE CO. TRANSPORT
P.O. BOX 4048
SANTA ANA, CA 92702-4048

JOHN P BECKER
1291 E HILLSDALE BLVD SUITE 217
FOSTER CITY, CA 94404

GLADYS MEADE
AMERICAN LUNG ASSOCIATION OF CALIFORNIA
P.O. BOX 7000-866
REDONDO BEACH, CA 90277

RANDY NICHOLS
12900 CROSSROADS PKWY SUITE 200
INDUSTRY, CA 91746-3499

DENNIS W. MILLER
24651 KINGS ROAD
LAGUNA NIGUEL, CA 92677

MS MICHELE GRUMET
2036 W 77TH ST
LOS ANGELES, CA 90047

MR BRADLEY ANGEL
GREENPEACE
FORT MASON BUILDING E
SAN FRANCISCO, CA 94123

SUSAN DURBIN
3580 WILSHIRE BLVD
SUITE 600
LOS ANGELES, CA 90010

DIAN M. GRUENEICH
380 HAYES ST., SUITE FOUR
SAN FRANCISCO, CA 94102

CITIZENS FOR A BETTER ENVIRONMENT
971 N LA CIENEGA BL #204
LOS ANGELES, CA 90069-4709

SUSAN NELSON
1675 SARGENT PL
LOS ANGELES, CA 90026

MARK ABRAMOWITZ
750 MARINE ST #C
SANTA MONICA, CA 90405

COALITION FOR CLEAN AIR
ATTN MARK ABRAMOWITZ
309 SANTA MONICA BL #212
SANTA MONICA, CA 90401

HACIENDA HEIGHTS IMPROVEMENT ASSOCIATION
ATTN MR WILL BACA
PO BOX 5235
HACIENDA HEIGHTS, CA 91745

CONCERNED CITIZENS FOR
LOCAL JOBS COMITTEE
P.O. BOX 3528
GARDENA, CA 90247-7228

GARY MOHART
P.O. BOX 3528
GARDENA, CA 90247

JO ANNE H. APLET
1101 CHAUTAUQUA BLVD.
PACIFIC PALISADES, CA 90272

PUBLIC AGENCIES LIST

AIR RESOURCES BOARD
PO BOX 2815
SACRAMENTO, CA 95814

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET
SAN FRANCISCO, CA 94109

CALIFORNIA ENERGY COMMISSION
1516 9TH ST ROOM 200
SACRAMENTO, CA 95814

CALIFORNIA WASTE MANAGEMENT BOARD
1020 NINTH STREET ROOM 300
SACRAMENTO, CA 95814

CALTRANS, DISTRICT 8
247 WEST THIRD ST.
SAN BERNARDINO, CA 92403

CALTRANS, DISTRICT 7
120 S SPRING STREET
LOS ANGELES, CA 90012

CALTRANS
PO BOX 942871
SACRAMENTO, CA 94274-0001

CEC ENVIRONMENT DIVISION
1516 NINTH STREET
SACRAMENTO, CA 95814

DEPARTMENT OF FISH AND GAME
REGIONAL MANAGER
245 W BROADWAY, SUITE 350
LONG BEACH, CA 90802

DEPT OF ENG. CONSTRUCTION DIVISION
ATTN: GEOLOGY AND SOIL ENG.
ROOM 860 CHE
200 N. MAIN STREET
LOS ANGELES, CA 90012

DEPT OF PUBLIC WASTE SYSTEMS
ENG. DIVISION
ROOM 650 CHE
200 N. MAIN STREET
LOS ANGELES, CA. 90012

DEPT OF PUBLIC WASTEWATER SYSTEMS
ENG. DIVISION
ROOM 650 CAG
200 N. MAIN STREET
LOS ANGELES, CA 90012

DEPT. OF HEALTH
714 P STREET RM 1253
SACRAMENTO, CA 95814

DEPT. OF WATER RESOURCES
1416 NINTH STREET
ROOM 215-4
SACRAMENTO, CA 95824

DGS/OEA
ATTN MARSHALL CLARK
915 CAPITOL MALL ROOM 402
SACRAMENTO, CA 95814

ENVIRONMENTAL MANAGEMENT BUREAU
1 WORLD WAY
LOS ANGELES, CA 90009

EPA
ATTN DAVID HOWECAMP
215 FREMONT
SAN FRANCISCO, CA 94105

L.A. DEPT. OF AIRPORTS
ONE WORLD WAY
LOS ANGELES, CA 90009

MARINE RESOURCES REGION
245 W BROADWAY SUITE 350
LONG BEACH, CA 90802

METROPOLITAN WATER DISTRICT OF SO CAL
ATTN: KATHLEEN M KUNYSZ
PO BOX 54153
LOS ANGELES, CA 90054

OPR
ATTN: KEITH LEE
1400 TENTH STREET
SACRAMENTO, CA 95814

PORT OF LA
425 S PALOS VERDES ST
PO BOX 151
SAN PEDRO, CA 90733-0151

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102

REGIONAL WATER CONTROL BOARD
COLORADO RIVER BASIN REGION (7)
73 271 HIGHWAY 111, SUITE 21
PALM DESERT, CA 92260

REGIONAL WATER CONTROL BOARD
SANTA ANA REGION (8)
9771 CLAIREMONT MESA BLVD, SUITE B
SAN DIEGO, CA 92124-1331

REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION (4)
107 S BROADWAY ROOM 4027
LOS ANGELES, CA 90012

REGIONAL WATER QUALITY CONTROL BOARD
VICTORVILLE BRANCH OFFICE
15371 BONANZA ROAD
VICTORVILLE, CA 93292-2494

REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION (9)
9771 CLAIREMONT MESA BLD
SUITE B
SAN DIEGO, CA 92124-1331

SAN DIEGO AIR POLLUTION CONTROL DISTRICT
9150 CHESAPEAKE DRIVE
SAN DIEGO, CA 92123-1095

SCAG
600 S COMMONWEALTH AVE
LOS ANGELES, CA 90005

SOURCE REDUCTION RESEARCH PARTNERSHIP
ATTN RICHARD HOLLAND
PO BOX 54153
LOS ANGELES, CA 90054

SOURCE REDUCTION RESEARCH PARTNERSHIP
ATTN DR KATHLEEN WOLF
PO BOX 54153
LOS ANGELES, CA 90054

STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION
SITING AND ENVIRONMENTAL DIVISION
1516 9TH STREET, MS-40
SACRAMENTO, CA 95814

STATE OF CALIFORNIA
RESOURCE AGENCY
1416 9TH STREET
SACRAMENTO, CA 95814

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
1416 9TH ST ROOM 1325 2
SACRAMENTO, CA 95814

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES
TOXIC SUBSTANCE CONTROL DIVISION
107 S BROADWAY ROOM 7011
LOS ANGELES, CA 90012

STATE OF CALIFORNIA
ATTORNEY GENERAL OFFICE
3580 WILSHIRE BLVD STE 600
LOS ANGELES, CA 90010

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER QUALITY
P O BOX 100
SACRAMENTO, CA 95801

US ARMY CORPS OF ENGINEERS
ATTN CESPL-PD-RP
PO BOX 2711
LOS ANGELES, CA 90053

CITY OF LAKE ELSINORE
COMMUNITY DEVELOPMENT DIR.
130 SOUTH MAIN STREET
LAKE ELSINORE, CA 92330

CITY OF MORENO VALLEY
DIRECTOR OF COMMUNITY DEVELOPMENT
12800 HEACOCK STREET
MORENO VALLEY, CA 92388

CITY OF PALM DESERT
DIRECTOR OF ENVIRONMENTAL SERVICES
73-510 FRED WARING DRIVE
PALM DESERT, CA 92260

CITY OF PALM SPRINGS
DIRECTOR OF COMMUNITY DEVEOPMENT
3200 TAHQUITZ-MCCALLUM WAY
PALM SPRINGS, CA 92262

CITY OF PERRIS
CITY MANAGER
101 NORTH "D" STREET
PERRIS, CA 92370

CITY OF RANCHO MIRAGE
DIRECTOR OF PLANNING
69-825 HIGHWAY 111
RANCHO MIRAGE, CA 92270

CITY OF RIVERSIDE
DIRECTOR OF PLANNING
3900 MAIN STREET
RIVERSIDE, CA 92522

CITY OF SAN JACINTO
PLANNING DIRECTOR
P.O. BOX 488
SAN JACINTO, CA 92383

REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN
73-271 HIGHWAY 111, SUITE 21
PALM DESERT, CA. 92260

COUNTY OF RIVERSIDE
PLANNING DIRECTOR
4080 LEMON STREET, 9TH FLOOR
RIVERSIDE, CA 92501

REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION
6809 INDIANA AVENUE, SUITE 200
RIVERSIDE, CA. 92506

GOVERNMENT LIST SAN BERNADINO

CITY OF CHINO
PLANNING DIVISION
P.O. BOX 667
CHINO, CA 91708

CITY OF COLTON
DIRECTOR OF PLANNING
650 NORTH LA CADENA DRIVE
COLTON, CA 92324

CITY OF FONTANA
DIRECTOR OF PLANNING
8353 SIERRA AVE.
FONTANA, CA 92335

CITY OF GRAND TERRACE
PLANNING DIRECTOR
22795 BARTON RD.
GRAND TERRACE, CA 92324

CITY OF LOMA LINDA
DIRECTOR OF PLANNING
11128 ANDERSON STREET
LOMA LINDA, CA 92354

CITY OF MONTCLAIR
DIRECTOR OF COMMUNITY DEVELOPMENT
511 BENITO STREET
MONTCLAIR, CA 91763

CITY OF ONTARIO
CITY PLANNER
303 EAST "B" STREET
ONTARIO, CA 91764

CITY OF RANCHO CUCAMONGA
COMMUNITY DEVELOPMENT DIRECTOR
9320 BASE LINE ROAD, STE. C
RANCHO CUCAMONGA, CA 91701

CITY OF REDLANDS
PLANNING DIRECTOR
30 CAJON STREET
REDLANDS, CA 92373

CITY OF RIALTO
DIRECTOR OF PLANNING
150 SOUTH PALM AVE.
RIALTO, CA 92376

CITY OF SAN BERNADINO
DIRECTOR OF PLANNING
300 NORTH "D" STREET
SAN BERNADINO, CA 92418

CITY OF UPLAND
DIRECTOR OF PLANNING
460 EUCLID AVENUE
UPLAND, CA 91786

COUNTY OF SAN BERNARDINO
SAN BERNARDINO CO. ADMIN. OFFICER
385 N. ARROWHEAD AVE.
SAN BERNARDINO, CA 92415

COUNTY OF SAN BERNARDINO
ADMINISTRATOR, ENVIRONMENTAL PUBLIC WORKS
825 EAST THIRD STREET
SAN BERNARDINO, CA 92415

GOVERNMENT LIST LOS ANGELES COUNTY

BUREAU OF PLANNING, COMM.& ENVIRON.
333 W. OCEAN BLVD, 4TH FLOOR
LONG BEACH, CA 90802

CITY ADMINISTRATIVE OFFICER
CITY HALL EAST, ROOM 300
200 N. MAIN ST.
LOS ANGELES, CA 90729

CITY OF BELL
COMMUNITY SERVICES DIRECTOR
6330 PINE AVE.
BELL, CA 90201

CITY OF BELL GARDENS
DIRECTOR OF COMMUNITY DEVELOPMENT
7100 S. GARFIELD AVE.
BELL GARDENS, CA 90201

CITY OF BELLFLOWER
DIRECTOR OF PLANNING
16600 CIVIC CENTER DRIVE
BELLFLOWER, CA 90706

CITY OF BEVERLY HILLS
DIRECTOR OF PLANNING
450 NORTH CRESCENT DRIVE
BEVERLY HILLS, CA 90210

CITY OF BRADBURY
CITY MANAGER
600 WINSTON AVE.
BRADBURY, CA 91010

CITY OF BURBANK
PUBLIC SERVICE DEPARTMENT
164 W. MAGNOLIA BLVD.
P.O. BOX 631
BURBANK, CA 91503

CITY OF CARSON
COMMUNITY DEVELOPMENT DIRECTOR
P.O. BOX 6234
CARSON, CA 90749

CITY OF CERRITOS
DIRECTOR, ENVIRONMENTAL AFFAIRS
BLOOMFIELD AVE. AT 183RD ST.
CERRITOS, CA 90701

CITY OF CLAREMONT
P.O. BOX 880
CLAREMONT, CA 91711

CITY OF CLAREMONT
207 HARVARD AVENUE
CLAREMONT, CA 91711

CITY OF COMMERCE
DIRECTOR OF COMMUNITY DEVELOPMENT
2535 COMMERCE WAY
COMMERCE, CA 90040

CITY OF COMPTON
PLANNING DIRECTOR
205 E. WILLOWBROOK AVENUE
COMPTON, CA 90220

CITY OF COVINA
PLANNING DIRECTOR
125 E. COLLEGE STREET
COVINA, CA 91723

CITY OF CUDAHY
DIRECTOR OF COMMUNITY DEVELOPMENT
5220 SANTA ANA STREET
CUDAHY, CA 90201

CITY OF CYPRESS
PLANNING DIRECTOR
5257 ORANGE AVE.
CYPRESS, CA 90630

CITY OF DOWNEY
COMMUNITY DEVELOPMENT DIRECTOR
11111 BROOKSHIRE AVE.
DOWNEY, CA 90241

CITY OF DUARTE
DIRECTOR OF PLANNING AND
1600 HUNTINGTON DRIVE
DUARTE, CA 91010

CITY OF EL MONTE
DIRECTOR OF PLANNING
11333 VALLEY BLVD
EL MONTE, CA 91734

CITY OF EL SEGUNDO
PLANNING DIRECTOR
350 MAIN STREET
EL SEGUNDO, CA 90245

CITY OF GARDENA
COMUNITY DEVELOPMENT DIRECTOR
1700 W. 162ND ST.
GARDENA, CA 90247

CITY OF GLENDALE
DIRECTOR OF PLANNING
633 E. BROADWAY, ROOM 104
GLENDALE, CA 91205

CITY OF GLENDORA
DIRECTOR OF PLANNING & REDEVELOPMENT
116 E. FOOTHILL BLVD.
GLENDORA, CA 91740

CITY OF HAWAIIAN GARDENS
CITY ADMINISTRATOR
21815 S. PIONEER BLVD.
HAWAIIAN GARDENS, CA 90716

CITY OF HERMOSA BEACH
PLANNING DIRECTOR
1315 VALLEY DRIVE
HERMOSA BEACH, CA 90254

CITY OF HIDDEN HILLS
PLANNING DIRECTOR
24549 LONG VALLEY ROAD
HIDDEN HILLS, CA 91302

CITY OF HUNTINGTON PARK
COMMUNITY DEVELOPMENT DIRECTOR
6550 MILES AVE.
HUNTINGTON PARK, CA 90255

CITY OF INDUSTRY
CITY MANAGER
15651 E. STAFFORD STREET
INDUSTRY, CA 91744

CITY OF INGLEWOOD
DIRECTOR OF PLANNING & DEVELOPMENT
ONE MANCHESTER BLVD.
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CITY OF LA HABRA
DIRECTOR OF PLANNING
201 EAST LA HABRA ROAD
LA HABRA, CA 90631

CITY OF LA HABRA
DIRECTOR OF PLANNING
201 EAST LA HABRA ROAD
LA HABRA, CA 90631

CITY OF LA HABRA HEIGHTS
PLANNING COMMISSION SECRETARY
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LA HABRA HEIGHTS, CA 90631

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PLANNING DIRECTOR
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CITY OF LA PUENTE
DIRECTOR OF COMMUNITY DEV.
15900 E. MAIN STREET
LA PUENTE, CA 91744

CITY OF LA VERNE
PLANNING DIRECTOR
3660 "D" STREET
LA VERNE, CA 91750

CITY OF LAKEWOOD
DIRECTOR OF COMMUNITY DEV.
5050 N. CLARK AVENUE
LAKEWOOD, CA 90712

CITY OF LANCASTER
DIRECTOR OF COMMUNITY DEV.
44933 N. FERN AVENUE
LANCASTER, CA 93534

CITY OF LAWNDALE
PLANNING DIRECTOR
14717 BURIN AVE.
LAWNDALE, CA 92060

CITY OF LOMITA
CITY ADMINISTRATOR
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DEPT. OF WORKS
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LOS ANGELES, CA 90012

CITY OF LOS ANGELES
DEPT. OF PUBLIC WORKS
CITY HALL, ROOM 810
LOS ANGELES, CA 90012

CITY OF LYNWOOD
COMMUNITY DEVELOPMENT DIRECTOR
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DIRECTOR OF BUILDING/PLANNING
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MAYWOOD, CA 90270

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DIRECTOR OF BUILDING & PLANNING
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CITY PLANNER
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REDONDO BEACH, CA 90277

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CITY MANAGER/CITY CLERK
TWO PORTUGUESE BEND ROAD
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APPENDIX C

RESPONSES TO COMMENTS

CHAPTER 1 SUMMARY

COMMENT 1.1: **The benefits of the Plan, including crop yield, are not adequately documented.**

COMMENTOR WOGA (10/27/88)

RESPONSE: The economic impacts of the Plan are discussed in Section 4-18 of the FEIR.

COMMENT 1.2: **The assertion that the AQMP will hasten regional trends, assuming current trends continue, is not well documented.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The AQMP is based on SCAG population and land use forecasts, which are in turn based on local plans, which guide regional trends. Therefore, this consistency in plans reinforces these planning trends. Please see EIR Chapter 3, Existing and Forecast Setting in the Basin, for a discussion on employment trends toward a service-based economy, which is facilitated by the AQMP's telecommuting, alternative work location, emissions control, and other provisions which strengthen a service economy trend.

COMMENT 1.3: **This section states that use of methanol could increase worker exposure to formaldehyde. The impacts on the general public with respect to formaldehyde formation need to be addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of methanol use are discussed in Comments and Section 4-14 of the FEIR.

CHAPTER 2 PROJECT DESCRIPTION

COMMENT 2.1: **The project needs to be described in greater detail. The technical aspects, as well as specific environmental and economic impacts, from individual control measures need to be addressed further. The Plan's assumptions need to be further delineated.**

COMMENTOR: Arco Products Company (10/26/88)
Chevron (10/26/88)
City of Ontario (10/17/88)
City of Santa Ana (10/27/88)
Southern California Edison (10/27/88)
Valley Industry and Commerce Association (10/31/88)
Western Oil and Gas Association (10/27/88)

RESPONSE: The FEIR contains additional clarification of the environmental and economic impacts of the AQMP control measures. More detailed information on the specific control measures can be found in Appendices IV-A, IV-B, IV-C, IV-G, IV-H, and IV-I to the AQMP.

COMMENT 2.2: **This section indicates that the DEIR focuses primarily on impacts in the Basin. Yet the Plan lacks depth and substance in addressing these impacts and does not evaluate many of the impacts in relation to the economic forces exerted from outside the Basin.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The economic impacts are discussed in Section 4-18 of the FEIR.

COMMENT 2.3: **Tier I measures would have significant secondary economic impacts that are not accounted for in the DEIR.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The economic impacts of the AQMP control measures are discussed in Section 4-18 of the FEIR.

COMMENT 2.4: **Only twelve pages of description are devoted to the AQMP. A table summarizing individual control measures and the anticipated emission reductions should be provided.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please refer to Tables in Section 2-0 in the FEIR.

COMMENT 2.5: **In Tables 2-1 to 2-5, references should be provided for the baseline emissions data.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: References for Tables 2-1 to 2-5 have been provided.

COMMENT 2.6: **In Tables 2-2, 2-3, 2-4 and 2-5, if the emissions reduction numbers indicated are derived from or in the same manner as the modeling for baseline projections, double-counting may have resulted. Also, there are descrepancies between the DEIR and the AQMP.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The data in Tables 2-2 to 2-5 have been updated to reflect the text in the FEIR. Double counting has not occurred.

COMMENT 2.7: **The project alternatives considered do not address any variations in control measures, only the dates. Efforts should be made to consider other approaches such as land use planning, activity management and mobile source technologies.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The precise implementation of the control measures will be addressed in the rulemaking process.

COMMENT 2.8: **Tier I and Tier II measures will impact industrial development and population growth. More weight should be given to this scenario. WOGA's alternative scenario also should be given consideration.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The summary of the scenario presented closely resembles the ROG-only Alternative. This alternative is discussed in Chapter 5 of the FEIR.

COMMENT 2.9: **The lack of prioritization of the control measures is misleading and does not allow readers to assess which sources provide the greatest benefit.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The implementation schedule for Tier I control measures is based on the following criteria: (1) Emission reduction potential; (2) Length of time required for implementation; (3) Technical, institutional, and legal readiness; (4) Cost effectiveness of control (5) Availability of financing; (6) Short term benefit without interfering with long-term goals; and the number of years the benefit will accrue.

COMMENT 2.10: **The projected emission reductions and emission inventories for stationary and mobile sources are incomplete (Table 2-2 through 2-5). Each table needs to include both baseline data prior to implementation of control measures and emissions after application of control measures.**

COMMENTOR: City of Claremont (10/27/88)
Southern California Edison (10/27/88)

RESPONSE: The data included in the text of the DEIR are correct. The tables have been updated to reflect the text.

COMMENT 2.11: **The DEIR states that "Emission reductions that may be achieved under this strategy have not been fully modeled ..." These reductions should be modeled to assess their impact.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Response to comment is in Chapter 5 Alternatives to the Project.

COMMENT 2.12: **What is the basis for setting 2007 as the year for completing implementation of the AQMP? The DEIR must demonstrate that some later date is not acceptable.**

COMMENTOR: **Southern California Edison (10/27/88)**

RESPONSE: The purpose of the DEIR is to evaluate the environmental impacts associated with the proposed project. As proposed, the AQMP is a twenty year plan to demonstrate attainment of federal air quality standards. An assessment of a delayed compliance alternative, showing the pros and cons, is contained in Chapter 5 of the DEIR and FEIR.

CHAPTER 3 EXISTING AND FORECAST SETTING

COMMENT 3.1: **Other existing settings are noted. There should be a section noting the existing regulatory setting.**

COMMENTOR: Arco Products Company (10/27/88)

RESPONSE: The legislative history of the Plan are addressed in Chapter 2 of the FEIR.

COMMENT 3.2: **On page 3-6, the DEIR states that "NO2 levels are currently 15 percent above the federal standard." This statement is erroneous. Data from Table 3-1 show NO2 levels only 2.4 percent above the federal standard.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The statement should read " 1986 NO2 levels were 15 percent above the federal standard." The FEIR contains information updated to 1987.

COMMENT 3.3: **The individual acreages in Table 3-9 do not add up to the total acreages shown in the table.**

COMMENTOR: WOGA (10/27/88)
Southern California Edison (10/27/88)

RESPONSE: The totals are the total land available in each county. As noted in the footnote to Table 3-9, the total includes vacant land and land considered undevelopable. In addition, because of the way SCAG reports the data, some categories may include subsets of other categories. Thus, "residential" and "commercial" land acreage may also be reflected in "urban" land uses. Thus, the total should not add up and double count land acreages.

COMMENT 3.4: **Tables 3-2 and 3-3 are not adequately documented. Also, it not clear that the emission projections account for possible secondary socioeconomic impacts that are addressed in subsequent comments.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Baseline emissions were derived from SCAG's growth forecast in the Basin. Discussion of the tables and relative documentation are addressed in Appendix III-B.

COMMENT 3.5: **The DEIR states immigrants are attracted to the Basin because of abundance of job opportunities. Other factors to consider are immigration would be affected by industrial decline and the impact of new immigration policies on population growth.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The socioeconomic impacts of the Plan are addressed in Section 4-18 of the DEIR.

COMMENT 3.6: **Growth limitations imposed by local cities are not considered in the AQMP regional planning analysis.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The assumptions on growth management are documented in Appendix IV-H of the AQMP, Growth Management Plan.

SECTION 4-1 AIR QUALITY IMPACTS

4-1.1

COMMENT: **The first line of paragraph 1 on page 4-1-3 should be deleted.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The first line of this paragraph describes the information contained in Table 4-1.1.

4-1.2

COMMENT: **The footnote to Table 4-1.1 requires clarification.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Please refer to the revised text in Table 4-1.1.

4-1.3

COMMENT: **Increased solid waste disposal impacts from FCC control measures are not adequately addressed as secondary impacts in the DEIR.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Wastes from FCC control devices are expected to add insignificant amounts to the Basin's solid waste stream. If such wastes are determined to be hazardous, they would have to be disposed of in an appropriate facility.

4-1.4

COMMENT: **Increased NOx emissions due to operation of afterburners are not addressed as secondary project impacts. These emissions may be significant.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Afterburners are not expected to be the control measure of choice for most emission sources, due to their high cost. Reformulation of VOC containing compounds is expected to be used instead of afterburners.

4-1.5

COMMENT: **The statement "The very significant reduction in NOx should help control ozone and PM10 because NOx is a precursor of ozone and particulate nitrate" is erroneous.**

COMMENTOR: **Southern California Edison (10/27/88)**

RESPONSE: Please refer to Comment 4-1.8 which discusses the NOx ROG issue.

4.1-6

COMMENT: **The secondary impacts of transporting and disposing of biodegradable waste have not been addressed.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Please refer to Section 4-12 on transportation impacts and Section 4-9 on solid waste impacts.

4-1.7

COMMENT: **Under Agricultural Processes, ammonia is implied to be a criteria pollutant. If so, ammonia emissions from selective catalytic reduction should be analyzed to determine what quantities will be created, and**

4-1.8

COMMENT: **The draft EIR should include a quantitative analysis of the possible increased acid deposition due to reductions in ammonia emissions.**

COMMENTORS: City of Claremont (10/27/88) and Southern California Edison (10/27/88)

RESPONSE: The basic assumption of this comment is incorrect. On the West Coast, the primary precursors of acid deposition are NO_x

and other nitrogen-containing species, including ammonia. As explained in the section entitled "Acid Deposition," the most effective strategies for reducing acid deposition are NO_x reduction rules. Although some of the short-range NO_x reduction rules may generate 3-4 tons per day of ammonia, these rules are expected to reduce NO_x emissions by over 70 tons per day. Any other ammonia emissions reductions are expected to help reduce acid deposition.

Acid Deposition

One of the primary precursors of acid deposition in the Basin is NO_x, for which the Basin has no significant upwind source (Broadbent et al., 1985). Other acidic precursors include sulfur oxide emissions and chloride compounds.

The substances mentioned above contribute to acid deposition in two ways: (1) they undergo dry and wet deposition and subsequently undergo reactions to acidic species on exposed surfaces, and/or (2) they can undergo atmospheric transformations to particulate sulfate and gaseous and particulate forms of nitrate acid which can deposit on exposed surfaces.

Precipitation pH values ranging from 2.25 to 6.20 have been recorded in the Basin, while the pH range of fog water samples recorded is even lower, 1.69 to 5.78 (Broadbent et al., 1985). Acid deposition can adversely affect soils, vegetation, aquatic ecosystems, materials, and human health.

According to Broadbent et al. (1985), It is difficult to assess the exact effectiveness of strategies for reducing acid deposition in the Basin because the "processes underlying the transport and chemical transformation of precursor emissions into acidic compounds and the ultimate deposition of these compounds are extremely complex and not yet completely understood." Therefore, it is not possible to match a given reduction in emissions of a specific pollutant to an overall reduction in acidity levels with any degree of precision. As indicated in the PM_{10} section, there is a roughly linear correlation between

NO_x controls and nitric acid and aerosol nitrate species reductions of approximately 1:0.8. Therefore, it can be predicted that an overall reduction in NO_x, sulfur oxide emissions, and other acid deposition precursors will result in lower overall levels of nitric and sulfuric acid in precipitation, fog, or other types of dry deposition (Broadbent et al., 1985).

Although there is no federal standard for acid deposition, the California legislature enacted the Kapiloff Acid Deposition Act which established, under ARB, a five-year research program to identify areas in California where acid deposition is occurring; determine the present and potential environmental, public health, and economic effects analyze methods to reduce acid deposition, etc. The results of this research program are currently being written and the study is expected to be released later this year (1988).

ARB and the District have identified a number of short-term and long-term control measures to reduce acid deposition by reducing precursor emissions. The District NO_x reduction rules are among the short-term control measures that are expected to reduce acid deposition.

4-1.9

COMMENT: **Formaldehyde formation from combustion of methanol needs to be addressed in greater detail.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Please see Section 4-17, Alternative Fuels Program which deals with the impacts of formaldehyde formation from methanol fuel.

4-1.10

COMMENT: **Is it realistic to assume that a five percent reduction in passenger car registration will be effected by raising registration fees? Is this assumption documented elsewhere in the Plan?**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The five percent reduction in passenger car registration is the assumption used in Control Measure H-2 in the AQMP. It is the purpose of the EIR to evaluate the project as proposed.

4-1.11

COMMENT: **Explain what improvements are planned for the 105 freeway.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The statement should refer to the 405 freeway, not the 105 freeway. An example of such improvements are high occupancy vehicle lanes.

4-1.12

COMMENT: **What are the effects of fees on emissions reductions?**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Please refer to Section 4-18, Emissions Fees and Charges.

4-1.13

COMMENT: **Table 4-1 shows peak ozone concentrations for the 1985 episode day which are of greater importance in terms of health effects. Some of the control measures proposed to mitigate these episodes may be technically infeasible.**

COMMENTOR: WOGA (11/27/88)

RESPONSE: The Plan is composed of three Tiers. There does exist some uncertainty about the precise technological breakthroughs that will occur.

4-1.14

COMMENT: **Control measure effectiveness in the DEIR is based on their ability to reduce maximum hourly concentrations. Curtailment strategies should be considered as an alternative in that they can achieve the same maximum hourly reductions.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Alternatives to the Plan are evaluated in Chapter 5 of the FEIR.

4-1.15

COMMENT: **The text states 90% of all CO and 60% of all NO2 are emitted by mobile sources, yet vehicle inspection and maintenance and new car standards implementation has been delayed. No corrections to this deficiency has been proposed until implementation of Tier II.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Enhance I/M programs and mobile source emission limitations are included as part of the Plan.

4-1.16

COMMENT: **Table 4-1.3 1985 CO quality shows the number of exceedances are localized. No aspect of localized source control was considered.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Anticipated growth of CO emissions from sources throughout the Basin necessitates Basin-wide CO controls.

4-1.17

COMMENT: **The headings in Table 4-1.5 need to be labeled properly in order to interpret data. References need to be provided.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: 1985 Nox emissions are from the District's 1985 emission inventory Appendix III-A of the AQMP. Emission estimates for the year 2000 and 2010 are from Appendix III-B. Emissions for the year 2010 with Tier I-III are from Appendix III-A and Draft AQMP, Table 3-4.

4-1.18

COMMENT: **Tier I Control Measures - Oil processing and petroleum distribution have not considered the safety regarding electrification of OCS platforms and ammonia storage associated with SCR. It is also unclear how the District plans to implement these measures, since the sources are beyond their jurisdiction.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The alternative methods of implementation of specific control measures will be addressed in the rule-making proceedings.

4-1.19

COMMENT: **Mobile source emissions from out of Basin transport of solid wastes are not considered.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: See Section 4-12 of the FEIR.

4-1.20

COMMENT: **It is not clear what is considered a toxic ROG emission and how these emissions differ from other sources which are not considered toxic.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Reactive organic gases react photochemically in the atmosphere to form ozone. Compounds that are designated as toxic either through the Tanner process or by EPA and that are also ROG's would be considered toxic ROGs.

4-1.21

COMMENT: **Two air quality issues were identified and are discussed below.**

a) There is concern that, "Toxic hydrogen sulfide and mercaptans may increase (DEIR, 4-1-18 [actually 4-1-28]).

b).What is the rationale for control of ammonia emissions from agricultural sources yet a number of control measures propose the use of catalytic converters (SCR)...These devices increase ammonia slip (DEIR, 4-1-30), and have other emissions consequences which have not been stated or quantified.

COMMENTOR: Southern California Edison (10/27/88)
WOGA (10/27/88)

RESPONSE: a) There is very little possibility that there may be increases in toxic air contaminants at refineries. Allowable emissions from refineries are determined by District Engineering staff and specified as a condition of operation during the permit application process. To ensure compliance with allowable emission limits, ARB has determined that monitoring devices

for refinery flares are technologically feasible, available, and economically reasonable for identifying and continuously recording refinery flare emissions. ARB has directed its staff to work with local air pollution control agencies to require refineries to install such monitoring devices.

b) Selective Catalytic Reduction (SCR) is a post combustion control technology to reduce NO_X emissions from stationary sources. For optimum operation, excess ammonia is injected into the flue gas to maximize the NO_X reduction reaction. The amount of ammonia injected into a unit is typically in a 1:1 ratio of ammonia to inlet NO_X.

The District has identified several short-term control measures to reduce NO_X emissions from stationary sources. Currently, the District has further developed, or is developing these control measures into District rules. Units affected by four of these rules (1109, refinery boilers; 1134, gas turbines; 1135, utility boilers; and 1146, commercial boilers and heaters) may use SCR to comply with each rule's emissions reduction requirements. Proposed rule 1165, ship berthing, does not involve a stationary combustion source and will not be considered further. Currently the NO_X emission requirements for District Rule 1146 are high enough that most units can comply with the rule by means other than retrofitting with SCR.

If the majority of units affected by Proposed Rules 1134 and 1135 and amended Rule 1109 retrofit with SCR, the cumulative ammonia emissions may offset the NO_X reductions resulting from these rules. Therefore, it is necessary to calculate the total amount of ammonia slip that may result from implementing these three rules, and compare these results with the anticipated NO_X reductions.

Determining Ammonia Slip

The amount of ammonia injected into the flue gas is proportional to the concentration of inlet NO_X. Therefore, the amount of ammonia slip in the outlet flue gas should also be

proportional to the amount of NO_x in the flue gas. However, this proportion will be affected by the following design conditions: the outlet NO_x required by the particular rule, for example, Proposed Rule 1135 and the Amendment to Rule 1109 require a NO_x emission limit of 0.03 pound of NO_x per million Btu of heat input. Currently, Proposed Rule 1134 requires a NO_x emission limit of 9 parts per million (ppm). District staff are recommending that the District Board adopt a slightly less stringent alternative NO_x emission limit of 12 ppm. In the analysis below, it is assumed that the Board will adopt the more stringent version of Proposed Rule 1134 to provide a "worst case scenario" analysis.

According to most sources (SCAQMD, 1988), actual ammonia slip levels are typically 5 - 10 ppm. If the weight of the NO_x in the outlet flue gas is known, it should be possible to determine the weight of the ammonia slip because they are proportional. Table 1 below shows the ammonia slip estimates for each of the three rules under consideration.

TABLE 1
Ammonia Slip Estimates[1]
And Total Daily Emissions Reductions

Rule	Daily Emissions Reductions	Daily Ammonia Slip	Total Daily Emissions Reductions
1134	13.9	1.07	12.83
1135	17.7	1.18	16.52
1109	27.8[2]	1.6	26.2
1146	9.0	N.A.	9.0
1165	5.0	N.A.	5.0
Totals	73.4	3.77	69.55

[1] See the next section for the assumptions used to determine ammonia slip and for the calculations.

[2] This figure does not include the 14.2 t/d reduction resulting from the 1985 version of the rule.

Table 1 indicates that the total ammonia slip resulting from the three rules of concern is 3.85 tons of ammonia per day versus the projected NO_x reduction of 69.55 tons per day from current and proposed NO_x reduction rules. Therefore, the ammonia slip resulting from the Proposed Rules and the Proposed amendment will slightly offset the benefits of these rules by contributing to PM emissions.

Because of its buoyancy, ammonia slip emissions would be more readily dispersed because they would rise to higher altitudes with little possibility of lingering at ground level (Benchley and Athey, 1981). This diluting effect would result in ground level ammonia concentrations of less than one part per million at the point of maximum impact (annual one hour maximum) (Eschenroeder, et al., 1987). This concentration is below the odor detection limit (1 ppm) and would not be expected to have adverse human health impacts.

Assumptions and Calculations

The major assumptions regarding determining ammonia slip are that the molar ratio of injected ammonia to NO_x in the flue gas are one and that the actual ammonia slip is proportion to amount of NO_x in the outlet flue gas. Therefore, if:

(1) $W = V \times D$ where

W = Weight

V = Volume

D = Density (N.B. Density is proportional to molecular weight) and

ammonia is proportional to NO_x, then

(2) $W_{NOx} = V_{NOx} \times D_{NOx} : W_{NH3} = V_{NH3} \times D_{NH3} =$

$\frac{WNOx}{} = \frac{VNOx}{} \times \frac{DNOx}{} =$

(3) $W_{NH3} = V_{NH3} \times D_{NH3}$

(4) $W_{NH3} = \frac{VNH3}{W_{NOx}} \times \frac{DNH3}{V_{NOx}} \times D_{NOx}$

Using equation (4) it is now possible to determine the ammonia slip for each rule.

The Amendment to Rule 1109, refinery boilers and process heaters:

Given:
Current NO_x emissions from this source category = 34.9 t/d
Expected NO_x reductions = 27.8 t/d
Remaining NO_x emissions = 7.1 t/d
NO_x flue gas volume = 0.03 lb/MMBtu
0.02 lb\MMBtu = 25 ppm
Ammonia slip = 10 ppm
Molecular weight of NO_x = 30.006 lbs/mole
Molecular weight of ammonia = 17.031 lbs/mole

$$W_{NH3} = 7.1 \text{ t/d} \times \frac{10 \text{ ppm}}{25 \text{ ppm}} \times \frac{17.031}{30.006} = 1.6 \text{ t/d} = 588.8 \text{ t/yr}$$

Proposed Rule 1134, gas turbines

Given:
Current NO_x emissions from this source category = 18.6 t/d
Expected NO_x reductions = 13.9 t/d
Remaining NO_x emissions =4.7 t/d
NO_x flue gas volume = 0.03 lb/MMBtu
0.03 lb/MMBtu = 25 ppm
Ammonia slip = 10 ppm

$$W_{NH3} = 4.7 \text{ t/d} \times \frac{10 \text{ ppm}}{25 \text{ ppm}} \times \frac{17.031}{30.006} = 1.07 \text{ t/d} = 390.6 \text{ t/yr}$$

Proposed Rule 1135, utility boilers

Given: Current NO_x emissions from this source category = 25.6 t/d
Expected NO_x reductions = 17.7 t/d
Remaining NO_x emissions = 7.9 t/d
NO_x flue gas volume = 0.03 lb/MMBtu
0.03 lb/MMBtu = 25 ppm
Ammonia slip = 10 ppm

$$W_{NH3} = 7.9 \text{ t/d} \times \frac{10 \text{ ppm}}{25 \text{ ppm}} \times \frac{17.031}{30.006} = 1.18 \text{ t/d} = 657.0 \text{ t/yr}$$

4-1.22

COMMENT: **Reductions in visibility outside the Basin may result from increased numbers of coal-fires electricity generating plants. These impacts need to be discussed, particularly with respect to impacts on the National Parks in the West.**

COMMENTOR: Southern California Gas Company (10/24/88)

RESPONSE: Please refer to Chapter 4, Section 4-15, Electric Utilities. The revised electrification supply matrix envisions no new coal fired generating plants outside the Basin.

4-1.23

COMMENT: **The section on ozone formation should be expanded to provide information on the number of days the concentration will potentially exceed both federal and state standards for each baseline scenario of 1985, 2000, and 2010, and also including each scenario with the various tier control measures.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: The District's predictions on ozone concentrations in the Basin are based on UAM modeling that requires extensive data acquisition and preparation efforts. Therefore, the recommended ozone modeling protocol (Appendix V-Q of AQMP 1988 Revision) consists of only a limited number of

multi-day periods of adverse meteorological conditions, or episodes, selected using the CART (Classification and Regression Tree) analysis (Horie, 1987). As a result of the analysis, four meteorological classes have been derived using over 80 percent of the high-ozone days from 1983 to 1985. By modeling the representative episodes corresponding to these four classes with different sets of emission scenario data and knowing the frequencies of occurrence of these episodes, it is possible to roughly estimate the reductions of numbers of high-ozone days in future years resulting from the proposed control measures. This is a very ambitious program being pursued by the District. The draft AQMP 1988 Revision ozone predictions, however, are based on UAM modeling of a single Met-Class 1 (most severe) episode. Much more extensive ozone modeling would have to be completed before we can properly address the above comment.

4-1.24

COMMENT: **Figure 4-1.2 needs to have the mass concentrations plotted on the map.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: These numbers have been included in Figure 4-1.2 of the FEIR.

4-1.25

COMMENT: **The discussion under agricultural processes (pages 4- 1.31 and 4-1.32) should include a quantitative analysis or the possible increased acid deposition due to reductions in ammonia emissions.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: The most significant effect of reduced ammonia emissions for the Basin, is estimated to be about 24% of gaseous nitric acid (HNo3 to ammonium nitrate. The annual average PM_{10} concentration data for Rubidoux and Fontana for 1985 and 1986 as well as the estimated ammonium sulfate and

ammonium nitrate mass fractions by Lurmann et al. (1988) are summarized in Table 1 below.

Table 1
Annual Average PM_{10} Concentrations*
for Rubidoux and Fontana

Station	PM_{10} (ug/m^3)	SO_4 (ug/m^3)	FS %	NO_3 (ug/m^3)	FN %
1985					
Rubidoux	96.1	6.43	11	18.92	34
Fontana	74.3	4.23	9	17.29	40
1986					
Rubidoux	86.0	5.79	11	16.47	33
Fontana	74.3	5.25	12	11.04	26
1985-86 Mean					
Rubidoux	91.0	6.11	11	17.70	33
Fontana	74.3	4.74	10	14.16	33

FS and FN are the estimated ammonium sulfate and ammonium nitrate fractions of PM_{10} mass.

Using the 1985 and 1986 mean data, we estimate the increase in non-converted nitric acid concentrations due to reduced ammonia emissions to be approximately 1.10 ug/m^3 for Rubidoux and 0.8 ug/m^3 for Fontana. The predominant mode of deposition in the Basin is expected to be dry deposition (Morgan and Liljestrand, 1980). Using a typical deposition velocity of 2 cm/sec for HN03 (Huebert and Robert, 1985) we obtain an increase in dry deposition of 0.70 $g/m^2/yr$ of nitric acid for Rubidoux and 0.56 g/m for Fontana. These are quite comparable to the observed NO3 depositions of 2 to 10 $meg/m^2/yr$ in the Basin area by the wet mechanism (Karamchandani and Lurmann, 1986). The corresponding increase in sulfuric acid vapor dry depositions are estimated to be 0.038 $g/m^2/yr$ for Rubidoux and 0.027 $g/m^2/yr$ for Fontana. These estimated increases in acidic depositions are by no means major, but they are not negligible.

4-1.26

COMMENT: **The emission reductions that could be anticipated from drive-through facilities are by no means major, but they are not negligible.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: Figure I is plotted to show the total idling time per car as a function of number of cars in the queue using data obtained in a drive-through facility queueing study (Fricker and Tsay, 1985). The study found that the facility had an average queue length of about 1.5 cars and a 3.5 minute average idling time per car during the two noontime hours in which data were collected. For a rough estimate, it is assumed that as a result of improved design of the facility (e.g., two serving windows instead of one) the average queue length is reduced to one car and the average idling time per car is reduced to 2.8 minutes. Then, there would be a 20 percent reduction of CO emissions, or about 608 tons/day out of a total of 3040 tons/day. Using the District's earlier estimate (Appendix IV-A of the AQMP 198 Revision) if all existing drive-through facilities would be improved. Based on the data presented in Figure 1, the maximum possible reduction of CO (corresponding to zero queue length), would be about 54 percent, or 1640 tons/day, by improving existing facilities.

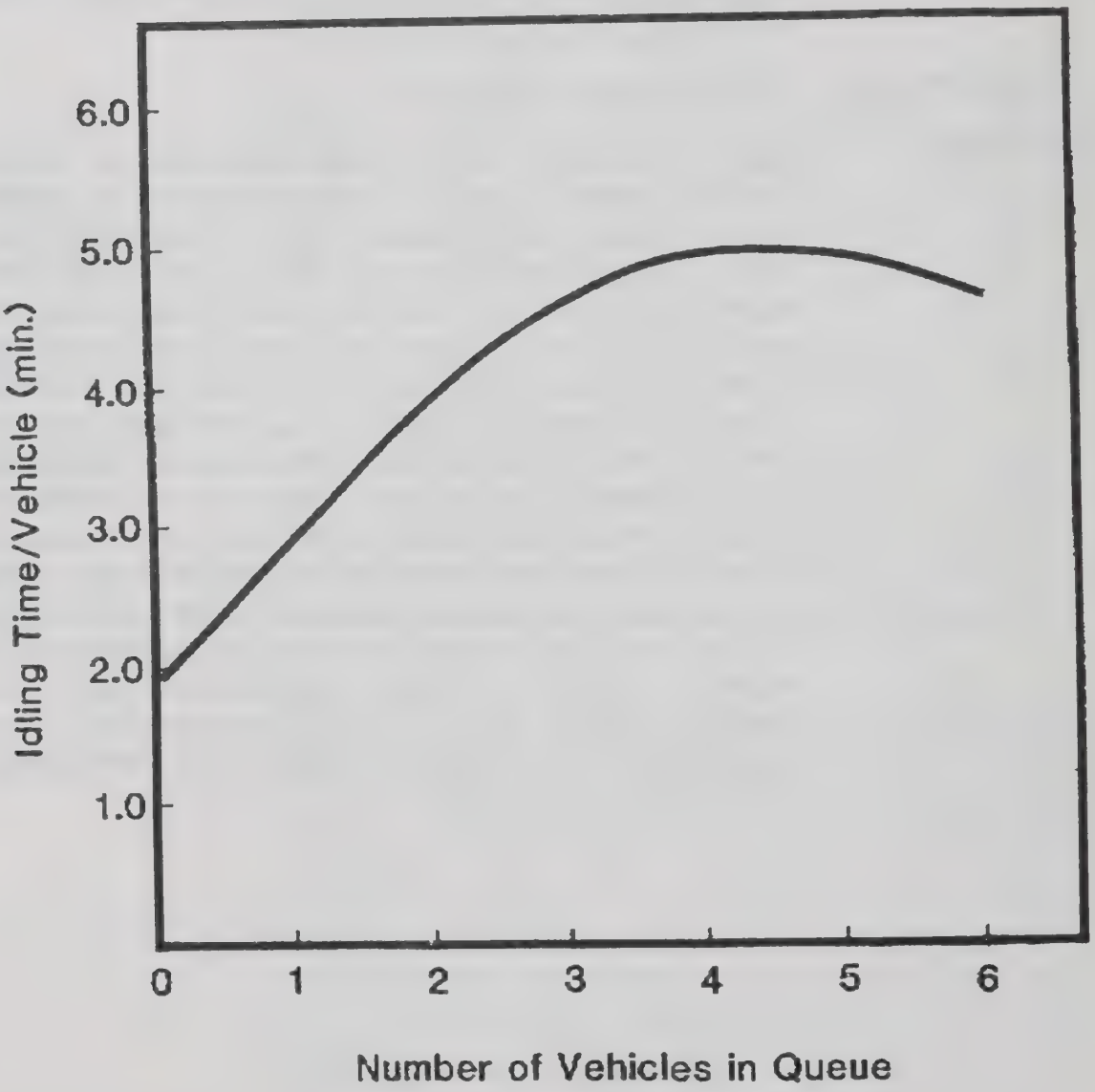


Figure 1
Observed Average Idling Time Per Vehicle of a Drive-through Queue

4-1.27

COMMENT: **Perchloroethylene should not be designated as a reactive organic gas because it is no more reactive than other compounds such as ethane which are on the list of negligibly reactive compounds.**

COMMENTOR: California Fabricare Institute (8/15/88)

RESPONSE: Perchloroethylene is photochemically non-reactive but toxic.

4-1.28

COMMENT: **Across the board reductions in ROG emissions in consumer products will not show appreciable air quality improvements.**

COMMENTOR: Chemical Specialties Manufacturers Association (10/27/88)

RESPONSE: The consumer products in question are aerosol sprays for domestic consumption. They can be either non-synthetic which contains moderately reactive alkanes, such as propane and butanes, or synthetic which contains chlorofluorocarbons. Reductions of the latter will not help in photo-oxidant control, as chlorofluorocarbons are photochemically non-reactive, but it is essential in protecting the stratospheric ozone layer.

4-1.29

COMMENT: **NO_X acts as a scavenger to destroy ozone. Significant reductions in NO_X emissions may inhibit this effect. "Natural" solutions to ozone reduction should be further explored.**

COMMENTOR: Blue Diamond (10/11/88)
Southern California Edison Company (8/15/88)
Southern California Edison (8/15/88)
Western Oil and Gas Association (10/27/88)

RESPONSE: To say "NO_X acts as a scavenger to destroy ozone" could be misleading. What is important is the ROG/NO_X ratio. For

areas that have low ROG/NO_x ratios, it is not effective and, in certain cases, counter-productive to reduce NO_x. But in areas of high ROG/NO_x ratios, it is quite effective to reduce NO_x. Therefore, the District advocates "selective" reductions of NO_x emissions based on detailed UAM predictions.

Several major difficulties have to be overcome before we can meaningfully address the problems of "natural" contributions to ozone. Emission inventories of biogenic hydrocarbons usually contain large uncertainties; photochemical reaction rates of biogenic hydrocarbons are also not accurately known. Its believed that significantly better understanding of the role of biogenic hydrocarbons in ozone formation is necessary before entertaining "natural" solutions.

The relationship between ozone and NO_x is complicated by the fact that NO_x both forms and destroys ozone at different stages of the photochemical cycle. NO_x emissions not only contribute to high ozone and NO_2 levels, but they also play an important role in visibility degradation and acid deposition (SCAQMD, 1987), including acid fogs which have been shown to occur throughout the Basin (Winer, 1988). Other issues associated specifically with NO_2 concentrations include: NO_2 is a precursor to ammonium nitrate particles which are the major components of secondary respirable particulates; NO_2 is a precursor to compounds such as peroxyacetyl nitrate (PAN), which is responsible for serious damage to vegetation; NO_2 is a precursor to compounds that have been demonstrated to impair public health such as nitrous acid (a gas phase mutagen), nitrosamines, nitro-polycyclic aromatic hydrocarbons (nitro-PAH), and other toxic compounds that are mutagenic or carcinogenic (Winer, 1988). Laboratory evidence indicates that none of the preceding compounds are emitted directly from combustion sources. Instead, they are formed in the atmosphere from reactions involving NO_x emissions from man-made combustion sources.

The federal ambient air quality standards are based on research that demonstrates human health impacts resulting from NO_2 exposure. For example, there is evidence (Sherwin, 1988) that ambient levels of NO_2 can result in: high levels of

subclinical lung diseases such as loss of lung reserves (healthy lung tissue); lesions; increase in type 2 cells; facilitation of cancer metastasis to the lungs; and alteration of T- lymphocyte and natural killer cell subpopulations, thus reducing the body's ability to defend itself against disease.

NO_x emissions reductions lead to reductions in NO_2 levels. According to Scheible (1988), between the years 1978 and 1983, NO_x emissions in the Basin were reduced by a total of approximately 135 tons per day. As can be seen in Table 2 below, this period coincides with a period of steady decline in NO_2 levels. Over the short-term, NO_x emissions reductions may increase ozone emissions near the point source. Over the long-term this effect will decline. Ultimately, NO_x emissions reduction rules and VOC emissions reduction rules are necessary to help ameliorate ozone air quality problems.

TABLE 2

Nitrogen Dioxide in the South Coast Air Basin - Summary Statistics: Trends in 6-Station Composite Average, 1978 - 1983 (Burbank, Long Beach, Lennox, West L.A., Downtown, L.A., Pasadena)

	1978	1979	1980	1981	1982	1983
6-Station Mean of Annual Average All hours[1]	6.52	6.15	5.85	6.04	5.56	5.05
3-Year Running Mean of Above[1]	6.53	6.17	6.01	5.82	5.55	5.21
6-Station Total of Days State Standard Was Exceeded (1 Hour Average 25 pphm)	90	78	78	62	25	27
3-Year Running Mean of Above	110	82	73	55	38	21

Adapted from: SCAQMD, 1985c.

The commentor suggests that there may be natural methods of "consuming smog," because of noticeable seasonable variation in air quality. This is a misconception. There are seasonal variations in air quality due to climate, meteorology, and chemical reactions of the various pollutants. For example, ozone is produced by atmospheric photochemical reactions between NO_x and other hydrocarbon species. Therefore, ozone concentrations are higher in the summer because solar

radiation is more intense and of longer duration, and temperature inversions are stronger and more persistent. The seasonal patterns for NO_2 are not as well defined as those for ozone, but the highest seasonal concentrations typically occur in the fall-winter months and are lowest in the spring and summer. Part of the reason for the increased NO_x levels in the fall-winter months is that solar radiation is less intense and days are of shorter duration. Consequently, the duration during which photochemical reactions involving NO_x occur are shorter and photochemical reactions are slower because solar radiation is less intense.

4-1.30

COMMENT: **Mitigation of formaldehyde emissions from methanol fuels to below PEL's does not provide the general public with the same safety factor included in determination of acceptable exposure levels for criteria pollutants. The health impacts from formaldehyde need to be addressed further.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please refer to Comment 4-1.9.

4-1.31

COMMENT: **Maintenance of existing vehicles is both achievable and quantifiable and could be a criteria for registration restrictions.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Inspection and maintenance programs are control measures within the Plan.

4-1.32

COMMENT: **Offshore ballasting of VOC's from cargo ships are a potential major source, yet restrictions om this activity are not considered. It is unclear how the AQMD intends to regulate jet aircraft currently controlled by the FAA.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Alternatives to the Plan are discussed in Chapter 5 of the FEIR. Alternative means of implementing the control measures will be addressed in the rule-making process.

4-1.33

COMMENT: **Infrastructure improvements involving highway capacity enhancements and HOV lanes may increase vehicle use by decreasing traffic impacts.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Transportation impacts are discussed in Section 4-12 of the FEIR.

4-1.34

COMMENT: **Water quality impacts from controls on surface coating and solvent use should be considered.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Water quality impacts are not expected to be significant because water containing VOCs from steam regenerated carbon adsorption devices cannot be disposed in sewers. If such wastes were discharged in sewers, they would volatilize at the sewage treatment plant.

4-1.35

COMMENT: **Industrial and manufacturing activity in general may be inhibited by emission fees, resulting in decreased availability of jobs and population growth.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Socioeconomic impacts are addressed in Section 4-18 of the FEIR.

4-1.36

COMMENT: **There appears to be an inconsistency in the ROG emission reductions expected from imposition of export fees on petroleum products and the tonnage included in the source category.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Reductions of 170 tons of ROG emissions are expected from the stationary source category (which includes both petroleum products and building construction) from implementation of export fees. The 85 tons/day of ROG emissions from miscellaneous processes is only a subset of those emissions which could potentially be reduced through emission fees.

4-1.37

COMMENT: **Secondary impacts from energy production outside the Basin such as increased emissions, resource and materials impacts, aesthetics, and costs need to be addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of the electrification strategy on areas outside the Basin are addressed in Section 4-14, Section 4-15, and Section 4-18 of the FEIR, as well as in the responses to comments on these sections.

SECTION 4-2 WATER QUALITY IMPACTS

4-2.1

COMMENT: **Seasonal and temporal controls, such as suggested as mitigation measures for controls on fugitive dust emissions, could be used in lieu of many of the control measures for stationary and mobile sources.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Alternative means of implementing individual control measures will be addressed in the rule-making process.

4-2.2

COMMENT: **The strain that would be placed on sewage systems near job-rich areas need to be considered.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Sewer capacity for job-rich areas is generally greater than for housing-rich areas. Therefore, increasing housing in job-rich areas should not strain sewage capacity. Implementation of job/housing balance measures by local governments should consider any potential sewage system impacts.

4-2.3

COMMENT: **Dilution of wastewater prior to discharge is not considered acceptable practice.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Dilution has been deleted as a mitigation measure in the FEIR.

4-2.4

COMMENT: **The analysis of impacts from rubber manufacturing appears to assume that carbon adsorbers are regenerated on-site. On-site regeneration would be prohibitive.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of carbon adsorption systems and the need to dispose of spent carbon off-site are addressed in the FEIR, Section 4-2, Solid Waste Impacts.

4-2.5

COMMENT: **Switching to lower sulfur content Saudi Arabian light may not be feasible. Control of sulfur content in fuels may not be entirely effective.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The control measure presents several potential strategies that may be used in order to reduce sulfur content in fuels. Impacts were not assessed based on complete elimination of sulfur in fuels, as suggested, but on limitations in the fuel's sulfur content.

4-2.6

COMMENT: **The impacts from delays caused by additional District measures to control emissions from soil decontamination may affect areas where rapid plume movement is facilitated by the hydraulic gradient.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of individual control measures are to be addressed in subsequent EIR's as rulemaking is undertaken.

4-2.7

COMMENT: **The risk of upset presented by replacement of storage tanks and pipes to distribute methanol needs to be addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: See Section 4-9 and 4-14 which deal with the risk of upset and impacts of methanol, respectively.

4-2.8

COMMENT: **Evaluation of the effect of add-on controls on the biological degradation process as well as increases in sewer effluent need to be provided.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please see Comment 4-2.16.

4-2.9

COMMENT: **In evaluating water re-use as a control measure, the legal implications of water distribution and ownership should be addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Changes in water rights and ownership are not suggested as mitigation measures. On-site treatment of wastes for reuse of water on-site as well as water conservation techniques are emphasized. The limitation of this mitigation strategy is acknowledged by the need to obtain NPDES permits. The permitting process would address the legal ramifications of water distribution and ownership.

4-2.10

COMMENT: **Disposable carbon units are suggested as a mitigation measure if reformulation proves ineffective.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Use of carbon adsorption units is not suggested as a mitigation for reformulation. Use of disposable carbon adsorption units is suggested as a mitigation for add-on controls, which may be used instead of reformulation, to decrease the amount of wastewater generated from steam cleaning the carbon adsorption units.

4-2.11

COMMENT: **A more quantitive analysis of demand for water supplies needs to be presented. Any projected shortfall in water supplies needs to be quantified.**

SOURCE: City of Claremont (10/27/88)

RESPONSE: Water demands for the Basin are addressed in Chapter 3 - Existing and Forecast Setting in the Basin. As indicated in this section, projected water demands will increase substantially in the future. In 1987, total water consumption within the Basin was slightly over 3 million acre feet. By the year 2010, the projected water demand will increase to 3.9 million acre feet. The increase in water consumption is due in part to a population increase of 43 percent.

In the year 2010, an estimated 16.1 million people will be residing in the Basin. Assuming four people constitutes one household with a daily water consumption of 333 gallons, a water supply of 1.5 million acre feet is needed to meet the increased population water demand. This residential water demand represents 39 percent of the total water demand as projected by MWD. The remaining 69 percent comprises the water demand for commercial, industrial, and agricultural purposes.

Presently, due to the low annual rainfall in the Basin over half of the water supply is imported. The imported water which represents the dependable supply (i.e. ground water replenishment) will be reduced, due to curtailments or reductions to imported supply such as,

Delays in completion of the State Water Project having an adverse effect on MWD, the Project's largest contractor;

Significant reduction in California's allocation of water from the Colorado River; and,

Potential shortages to the City of Los Angeles from reductions in the Owens Valley and Mono Basin sources crating a void MWD would have to fill, further straining the dependable supply.

To offset the reductions of imported water supplies, there are a number of available water management strategies, if implemented, which could resolve the potential problems if implemented. These strategies, addressed below, include development of additional imported supplies, optimization of local supplies and additional reliance on supplemental supplies from reclamation, desalination and water conservation.

Strategies involving additional State Water Project capacity including augmentation by the Central Valley Project, development of Delta transfer facilities, development of surface storage facilities, wider utilization of groundwater basins, and water marketing to provide for broader purchase and transfers of water rights between areas and individuals;

Short-term strategies for increased Colorado River involving California;s being able to divert more than 4.4 million acre feet, its annual appropriation in the next decade with MWD receiving all excess water;

Long-term strategies for Colorado River water involving more efficient use of the allotment through large scale conservation and exchange measures; and,

An aggressive program should be organized to protect groundwater quality in cooperation with all Federal, State, and County regulatory bodies (Water Development, 1986).

4-2.12

COMMENT: **Water consumption may increase as a result of increased paper and glass recycling. These impacts on the water supply need to be addressed.**

SOURCE: County of Orange, Environmental Management Agency (10/24/88)

RESPONSE: Compared to manufacturing paper and glass from virgin materials, use of recycled materials is less water- and energy-intensive. This is true for the production process as a whole, starting with inputs (either virgin or recycled materials) through the finished product (paper or glass). However, since production of paper or glass from virgin materials typically takes place outside the Basin, while in-Basin production uses a greater degree of recycled materials, increased recycling may increase water demand in the Basin, while decreasing it outside the Basin. The net result would be an absolute decrease in water use, compared with using virgin inputs.

4-2.13

COMMENT: **The liquid hazardous waste resulting from cleaning and regenerating carbon adsorbers has not been adequately addressed as a secondary project impact.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Please see Section 4-9 which deals with waste impacts.

4-2.14

COMMENT: **The effects of methanol in the water supply need to be addressed.**

COMMENTOR: County of Orange, Environmental Management Agency (10/24/88)

RESPONSE: Methanol is completely soluble in water; therefore, a very large spill could possibly reach an aquifer where it would disperse rapidly. Methanol has no strong odor or taste so it could reach toxic levels in the drinking water supply before being detected.

In the event of an accidental release of methanol, contamination of an underground water supply is unlikely unless the aquifer is small, the spill very large, and the well drawing the water is very close to the spill site (D'Eliscu, 1987). Therefore, increased use of methanol may affect local sanitation districts because methanol could get into the water supply as a result of accidents during transport or handling. Initially, the magnitude of these impacts is expected to be small because the demand for methanol is expected to increase slowly.

As a hazardous substance, methanol is tightly regulated by the EPA, the Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). OSHA specifies the procedures required for using and storing methanol, as well as the permissible exposure level (PEL) of methanol to workers in the 29 series of the Code of Federal Regulations (CFR) (see also NIOSH/OSHA, 1981). The DOT specifies the procedures for safely transporting methanol, as well as the procedures to follow in case of accidental spills during transport, in the 49 CFR series of regulations. The EPA in the 40 CFR series and the DOT in the 49 CFR series specify the requirements for proper labeling and placarding of hazardous substances. In addition to the above regulations, the American National Standards Institute (ANSI, 1981) recommends safety procedures for handling and storing methanol, and the American Conference of Government Industrial Hygienists (ACGIH) recommends a threshold limit

value (TLV) as a time weighted average (TWA). The TLV is considered the maximum exposure a worker can endure under normal working conditions without experiencing any harmful health effects. TLVs are often used by OSHA to determine the PELs. When taken together the above regulations and recommendations provide comprehensive measures to reduce hazards that could occur when handling methanol.

4-2-15

COMMENT: **The impacts of the AQMP control measures on ground water, particularly those dealing with VOC's, should be addressed.**

COMMENTOR: Metropolitan Water District of Southern California (10/27/88)

RESPONSE: The use of water in implementing some of the AQMP control measures is not expected to impact Basin groundwater, since out-of-Basin sources can be used to meet these needs. Alternatively, water conservation programs can be implemented to offset increased water demand.

Steam regeneration of carbon adsorption systems for VOC control has the potential for releasing vOCs into the sewer system. However, VOCs would not reach groundwater level because they would either evaporate for be collected at the sewage treatment plant.

4-2.16

COMMENT: **Disposal of liquid wastes by slurrying them into sewage treatment systems has not been adequately addressed as a secondary project impact.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Sewage treatment facilities can choose not to accept liquid wastes if these would impair their treatment process. Acceptable liquid wastes could increase the volume of sewage.

Water Quality Agencies should consider these impacts in revising Water Quality General Plans.

SECTION 4-3 PLANT LIFE

4-3.1

COMMENT: **Information on the effects of air pollution on agricultural production and tree growth need to be provided.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: The South Coast Air Basin is an area rich in diverse plant life, vegetation and agricultural crops. Approximately forty years ago oxidant air pollution damage to various plant life became apparent to Basin scientists and residents. Since then, much research has been done to confirm the fact that the high levels of criteria pollutants in the Basin contribute to substantial plant life damage. (Air Pollution Effects on Plant Growth)

Ozone (O_3) probably does more damage to vegetation than any other criteria pollutant. Given the extremely high ozone levels monitored in the Basin each year, the cost of damage to plant life is substantial. Exposure for two or more hours to concentrations of 10 parts per hundred million of ozone contaminated air may cause acute injury to several of the most sensitive species of plants. (Air Pollution Damage to Vegetation) The federal ozone standard is 12 parts per hundred million was exceeded at all monitoring locations in the South Coast Air Basin at least one day in 1987 with some stations exceeding this standard more than 100 days. The persistent effects of these ambient concentrations allow Basin plants little or no chance for detoxifying absorbed pollutants due to the lack of sufficient pollution-free times. (R. Guderian, Air Pollution, 1977) The resulting damage to vegetation in the Basin is quite substantial. Ozone is not, however, the only pollutant known to cause vegetation damage.

Small grain crops such as barley, oats, rye, and wheat are relatively sensitive to SO_2 injury. Injury on these grain crops and other parallel-veined plants usually develops as necrotic streaks between the veins near the leaf tip and extends toward the base as the severity of injury increases. On grasses and grains where the leaf blade curves downward, injury is usually most severe at the bend.

The Basin's combination of high levels of various criteria pollutants has also been shown to damage plant life. A study by Menser and Heggestad in 1966 first demonstrated a synergistic response by plants to exposure of several pollutants. (Air Pollution Effects on Plant Growth, 1974) Hydrogen fluoride and nitrogen dioxide have been shown to be harmful to ornamental plants and citrus trees which are of great economic importance in California. (McGraw-Hill Encyclopedia of Environmental Science) California is the nation's leading agricultural state. In 1984, crop receipts totaled $16 billion. The South Coast Air Basin currently maintains approximately 3 million acres of land for farms. The following crops account for much of the Basin's revenue: grapefruit, lemons, corn, dates and strawberries. (California Almanac 24-4)

Air pollution has also been shown to cause substantial forest damage. While forests do not account for the vast amount of land in the Basin that farms do, there are still approximately 110,000 acres in San Bernardino County devoted to forestry. (California Almanac)

Since air pollution has been demonstrated to damage the health of plant life, particularly agricultural crops, it is apparent that the "smog" levels in this Basin are extremely costly to residents. These crops are vital to the economic stability of the South Coast Air Basin. While it is very difficult to quantify the amount of damage caused by air pollution, the District estimates the cost of this damage to be $9.6 billion annually. (SCAQMD, 1988) This figure was included in the Draft Air Quality Management Plan and is further broken down into health, agriculture, forest and materials damage in the Final version of the AQMP.

4-3.2

COMMENT: **More information on the impacts of the Plan on plant life need to be provided.**

COMMENTOR: Greg Ballmer, University of Riverside (10/25/88)

RESPONSE: The control measures which may affect the vegetation in the region most significantly are the growth management measures. Many of the projected 5 million additional people who are projected to move into this area will live in the eastern regions of the Basin. San Bernardino and Riverside Counties have vast areas of virgin or undeveloped land. Any increased development or alterations in current land use policies may disrupt the existing plant life.

The local jurisdictions in each area will act as the lead agency in reviewing any proposed developments. Substantial development projects in those areas may require Environmental Impact Reports which must address any disruption of the vegetation and animals endemic to the particular region.

The reduction in the levels of criteria pollutants, particularly ozone, resulting from the implementation of the Air Quality Management Plan should greatly enhance the health of vegetation and plant life in the Basin. Economic benefits may be accrued through the reduction of crop damage due to elevated ozone levels.

SECTION 4-4 ANIMAL LIFE

4-4.1

COMMENT: **Information on the effects of air pollutants on animal productivity need to be provided.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: Toxicological studies of the responses of laboratory animals to specified concentrations of pollutants have been conducted for many years. These bioassays have been used to obtain results from which human effects can be extrapolated. When both human and animal test subjects are used, many of the same physiological effects are apparent.

A recent study on this subject by California State University at Fullerton confirms this finding. Based on both animal and human studies, several adverse effects are attributable to ozone exposure. These include an increased susceptibility to respiratory infections, wheezing and other breathing difficulties, exercise impairment, and many severe lung impairments. (Economic Assessment of the Health Benefits from Improvements in Air Quality. November, 1988) The impacts to the lungs may result in the development of fibrotic diseases in the lung and may constitute an important chronic health effect from ozone. Another Basin study on the effects of ozone exposure on domestic dogs is currently being conducted. Effects of pollution exposure may vary with animal species and surrounding conditions. Also, different chemical compounds may result in varying effects on animals.

Insecticides and pesticides can pose a significant threat to animals. Their food supply may become contaminated by exposure to various air pollutants and they could become ill or die as a result. Numerous documented cases of animal deaths have been related to this cause. (Sell, Industrial Pollution Control) Chemicals and pollutants can then be carried through the food chain, affecting many different animal species.

Assessment of the effects of certain contaminants on livestock is relatively straightforward. Thus, contamination of forage by airborne fluorides and arsenicals from certain industrial operations has led to the loss of large numbers of cattle in the area adjacent to chemical or industrial facilities. (McGraw-Hill Encyclopedia of Environmental Science) Thus, we can conclude that there is substantial evidence that air pollution damages both commercial plants and animals. (Lave, Air Pollution and Human Health)

4-4.2

COMMENT: **More information on the impacts of the Plan on animal life need to be provided.**

SOURCE: Greg Ballmer, University of Riverside (10/25/88)

RESPONSE: The plan may affect various animal species in the Basin as certain control measures are implemented. If significant changes in land use or population growth occur certain animals could be affected. Every consideration should be made to insure the safety of the animals, particularly sensitive species.

Endangered species are those which are in danger of extinction within all or a significant portion of its range. The following California mammals are among others on the endangered list as of 1984: Black-footed Ferret, Gray Wolf, Morrow Bay Kangaroo Rat, Salt Marsh Harvest Mouse, and San Joaquin Kit Fox. (California Almanac p. 8-25)

The Environmental Impact Reports for significant projects must address any adverse impacts to animal life. Also, the Federal Endangered Species Act places animals on a list and mandates that they should be protected through whatever means are possible.

The implementation of the Air Quality Management Plan is not anticipated to adversely affect any Basin animal populations. There will also be significant health benefits to

the animals and livestock through the reduction of contaminant levels, particularly ozone.

SECTION 4-5 NOISE IMPACTS

4-5.1

COMMENT: **The DEIR should assess the noise impacts associated with routing trucks to surface streets during rush hours.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: Please refer to Chapter 4-5 on Noise Impacts for the responses to these comments.

4-5.2

COMMENT: **The noise impacts associated with shifting aircraft departures to off-peak hours, spreading airport-related traffic over the entire day, need to be included.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: Please refer to Chapter 4-5.

SECTION 4-7 LAND USE

4-7.1

COMMENT: **The impacts that would result from increased population densities need to be specifically addressed.**

COMMENTOR: Blue Diamond (10/11/88)
Chief Administrative Officer, County of Los Angeles (10/26/88)

RESPONSE: The land use impacts that would result from increased population densities due to the Growth Management Control Measure include changes in building height, lot coverage and setbacks, density, circulation patterns and parking. As noted in the DEIR (4-7.4) these changing aspects of the build environment would be regulated by local plans. Urbanized areas of Los Angeles and Orange Counties would be most likely to experience increased densities as 5 percent of future housing growth that would otherwise occur in the inland counties is shifted to job-rich areas.

4-7.2

COMMENT: **Significant changes in work hours, management practices, and work locations will limit the ability of local jurisdictions to control land use decisions.**

COMMENTOR: City of Buena Park (10/26/88)

RESPONSE: The DEIR notes on 4-7.1 that Alternative Work Schedules and Locations would create a demand for local work centers that may require general plan land use and zoning ordinance modifications. These land use adjustments would be most needed in "job-poor" subregions and in areas with significant numbers of "information workers" capable of telecommuting from a remote work station via telephone and computer links.

In addition, alternative work schedules, management practices, and work locations would result in longer operating hours for offices and commercial concerns, which could conflict with current local restrictions on hours of operation. Some residential and other sensitive land uses may require buffering from the effects of additional business-related traffic and work trips outside the hours of 8 a.m. and 6 p.m.

4-7.3

COMMENT: **Capacity enhancements and time frames for completion of these infrastructure improvements should be noted.**

COMMENTOR: City of Claremont

RESPONSE: As noted in the DEIR, the land use impacts of freeway capacity enhancements would begin to occur in Tier I, 1988 through 1993. Right-of-way designation and acquisition precedes the freeway construction process, which means that land use impacts would begin early in the Tier I implementation process.

Similarly, land use impacts due to planning and construction of high speed rail would begin shortly after 1993, when Tier II measures are due to be implemented. Again, local land use impacts resulting from designation, acquisition and/or condemnation of the right of way, and suitable sites for stations and parking would begin early in the design process.

4-7.4

COMMENT: **Address the land use impacts associated with bus electrification.**

COMMENTOR: Los Angeles County Transportation Commission, (9/15/88)

RESPONSE: The Los Angeles County Transportation Commission estimates that more than 840 power substations would be needed to charge an estimated 850 mile electrified bus system in the region. Since lines to be electrified travel the most dense transit-use corridors, most of the land needed for substations would already be committed or designated for other urban uses. LACTC states that most of the required land would need to be condemned. Substation sites could be incompatible with adjacent land uses; light, noise, increased traffic, and other impacts associated with industrial uses could be mitigated by architectural design, walls, buffer zones surrounding the substation, landscaping, and restricted hours of operation.

4-7.5

COMMENT: **Address external land use impacts associated with production of power outside the Basin to meet the needs of Basin-wide electrification in Tier III.**

COMMENTOR: Southern California Edison

RESPONSE: In addition to the land use changes required to accommodate new or expanded electric transmission corridors needed to achieve full electrification, this measure would require designation of land for new or expanded power plants, either within the Basin or in other basins, including those outside he state. Regardless of the air basin in which they are located, these new or expanded power plants would require large parcels of industrially zoned land that can be accessed by transmission corridor rights of way. Some communities may already have available appropriate sites. If no, local land use plans would need to be modified to accommodate power plant sites. Non-industrial land uses adjacent to designated power plant sites could require buffering to mitigate adverse power plant impacts during construction and operation, including noise, odors, air pollution, and increased traffic. Serious long term industrial impacts associated with power plants could necessitate the redesignating of nearby land uses to more compatible types.

4-7.6

COMMENT: **Address the land use impacts of establishing massive methanol production capacity to meet the demands of alternative fuels measures.**

COMMENTOR: Southern California Edison

RESPONSE: Making methanol widely available in the Basin will require establishment of a network of production facilities, delivery pipelines, and distribution outlets. Current local land use plans may designate available industrial land in appropriate locations. If not, local land use plans will have to be modified.

Methanol production facilities and distribution networks could be incompatible with some nearby land uses, resulting in a changing land use mix adjacent to the facilities over time. If sufficient land for production facilities is not available, these land use impacts would occur in jurisdictions outside the Basin.

4-7.7

COMMENT: **The impacts from existing control measures are considered, but no consideration is given to limiting activities in areas with high concentrations of photochemically reactive pollutants.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The purpose of an environmental impact report is to assess the environmental impacts that may result from a project or plan. The strategy suggested is not one of the control measures contained in the AQMP. An evaluation of the alternatives to the AQMP are presented in Chapter 5 of the FEIR.

4-7.8

COMMENT: **The impacts of alternative work schedules and locations on mobile sources are not estimated here.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Vehicle-related impacts from alternative Work Schedules and locations are provided in Section 4-12 Transportation.

4-7.9

COMMENT: **The economic impacts the AQMP may have on growth are not addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: See Section 4-18 Economic Impacts.

4-7.10

COMMENT: **The impacts of freeway capacity improvements are not addressed in this section.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Refer to Section 4-12 Transportation Impacts.

4-7.11

COMMENT: **The high speed rail measure is not feasible because of the time frame.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Potential failure to meet a construction deadline should not prevent selection of a measure.

4-7.12

COMMENT: **The impacts of electrification on areas outside the Basin are not addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Refer to Section 4-14 Energy which deals with the impacts of electrification.

4-7.13

COMMENT: **The impacts of additional power lines leading into the Basin that need to be sited need to be addressed.**

COMMENTOR; Public Utilities Commission (11/7/88)
Southern California Edison (10/27/88)

RESPONSE: The Revised Electricity Supply Matrix projects lower amounts of out-of-Basin capacity: 1500 - 3000 MW during daytime and 5000 - 8500 MW during night time. Consequently, transmission line construction needs are lower. To the extent that expanded transmission capacity cannot utilize existing corridors, new ones would have to be found. The main environmental impacts of new transmission lines would be the loss of other uses for the land and impairment of scenic views. The scarcity of these impacts will be considered in the environmental review progress for transmission line siting.

4-7.14

COMMENT: **Significant changes in work hours, management practices, and work locations will limit the ability of local jurisdictions to control land use decisions.**

COMMENTOR: City of Buena Park (10/26/88)

RESPONSE: Local governments retain their full land use authority under the AQMP. The changes cited by the commentor will introduce new considerations in local planning and implementation, but will not limit freedom of action by local agencies. The District has been given authority over the control of indirect source emissions, for which a program has not yet been fully developed. Again, encroachment on local government police powers is specifically precluded in that legislation. The District will work with local governments to deal with changes in the workplace.

4-7.15

COMMENT: **The discussion on telecommuting needs to be expanded to include data on any adverse social impacts on those people**

who would not choose to work at home or in satellite work stations.

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: These data do not exist at this time. The commentor has provided no information on these potential impacts, and it would be impermissibly speculative to discuss what the postulated "adverse social impacts" might be or how they would differ from the effects of the current practice of daily commuting.

4-7.16

COMMENT: **Capacity enhancements and time frames for completion of these infrastructure improvements should be noted.**

COMMENTOR: City of Claremont (10/27/88)

RESPONSE: These capacity enhancements and time frames are not known at this time. The AQMP is a general regional plan. The details of implementation must await the development of more specific localized plans, and a tiered impact analysis conducted at that time under the provisions of CEQA.

SECTION 4-8 NATURAL RESOURCES

4-8.1

COMMENT: **Controversy between local jurisdictions currently exists regarding land use plans which conflict along city borders.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: An Air Quality Element as part of a local jurisdiction's General Plan is advocated to assist in decreasing this controversy.

4-8.2

COMMENT: **Increased reliance on coal to generate electricity may potentially affect the Greenhouse Effect.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The Plan does not advocate that coal be used to supply the energy needed for the electrification strategy. The impacts of the electrification strategy are discussed in Sections 4-14, 4-15, and 4-18.

4-8.3

COMMENT: **The impacts associated with construction of a natural gas distribution system are not discussed in the DEIR.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Refer to Section 4-14 Energy Impacts.

4-8.4

COMMENT: **The potential for control measures to force manufacturers out of business should be reevaluated.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Refer to Section 4-18 on economic impacts.

SECTION 4-9 RISK OF UPSET

4-9.1

COMMENT: **A risk of upset may result from solvent substitution.**

COMMENTOR: SRRI Source Reduction Research Institute

RESPONSE: This issue was addressed in the EIR Subsection: Reformulation of Solvents and Coatings, pages 4-9-7 through 8.

With regard to the depletion of the stratospheric ozone layer, the District prohibits the use of substitute compounds that would lead to the depletion of this layer. This statement is intended to correct the erroneous statement identified in the EIR (page 4-9-7), by SRRI in their comment.

4-9.2

COMMENT: **Information on inspection, monitoring, and good housekeeping practices should be provided.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Both federal and state laws are currently in place which regulate the disposal of hazardous wastes. Adhering to these laws will minimize the risk of upset.

4-9.3

COMMENT: **The potential for release of ammonia from SCR technology should be analyzed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Refer to Comment 4-1.24.

4-9.4

COMMENT: **Greater analysis of public risks from exposure to methanol should be provided.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Refer to Comment 4-2.14.

4-9.5

COMMENT: **Acute exposure to methanol poses substantially greater threat to public health than does exposure to methanol. This impact should be evaluated. Public health impacts from water contamination with methanol and the potential for accidental releases should be evaluated.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please refer to Comments 4-9.8 and 4-14.17.

4-9.6

COMMENT: **The explosion hazards of natural gas during collision should be analyzed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please refer to Section 4-9.

4-9.7

COMMENT: **The analysis of solvent reformulation is confusing. The analysis should be clarified.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please refer to Comments 4-9.8 and 4-17.2 for clarification.

4-9.8

COMMENT: **Address potential adverse safety impacts of the control measures necessary to achieve Tier I and II goals on the marine vessels and industry**

COMMENTOR: **WOGA (10/27)88**

Response: **VOC Emissions From Marine Coating Operations:** Risk of upset and the extent of impacts due to control measures applied in the Tier I program will depend on the type of control methods or devices used. Any control method involving the concentration of volatile organic compounds (VOCs), and the treatment of these compounds could result in exposure of worker and the public to fire hazards, toxic emissions or explosions.

The marine industry would be no different from other types of industries which use substances containing VOC. However, as coatings requirements now call for lower amounts of VOCs in marine coatings and solvents (District Rule 1106), the need for controlling VOC emissions could be reduced by reformulation. The reduced concentration in coatings and solvents, will correspondingly lower the risk of upset posed by VOC-ladened compounds.

On the other hand, the use of exempt compounds in the reformulation of coatings could present even a greater risk as some of the compounds, while they are not highly volatile compounds, some of them could be toxic. The impacts which might be caused by the use of exempt compounds will not result in significant adverse impacts on the environment. Any impact will very much be localized.

In order to mitigate impacts of control measures on marine operation, proper operating procedures, and monitoring conditions must be maintained. Strict compliance with Resource Conservation and Recovery Act (RCRA), and national standards for tanks, storage and disposal facilities

(TSDF) developed by the EPA should be maintained. This standards defines the acceptable management of hazardous waste. In addition these practices must comply with the provision the local fire department. Operators must also maintain and comply with emergency response plan provisions.

Any risk of upset impacts which may be caused by the implementation of the Tier II control measures and goals, will result from the increase of alternative (clean) fuels, such as methanol, propane fuel cells, etc. The risk would arise primarily in the public or operator not being too familiar with the operation and handling of these fuels. Also, the design of storage facilities and dispensing units could raise the risk of exposure of the public to environmental hazards.

The impacts caused by the increased volumes and presence of clean fuels can be mitigated by increased public awareness of how to handle these fuels. The many years of experience gained in the production and handling of gasoline will aid in proper tank design and handling procedures for these fuels. The specific standards and approach to deal with clean fuel will be covered in by implementation measures which are yet to merge as the Plan is being implemented.

Emissions From Marine Vessels Refueling: Present practices of uncontrolled vapor emissions from marine vessels has some obvious safety and health impacts associated with them. There is a danger in refueling of marine vessels without the appropriate vapor recovery systems. The resultant effects of this practice are spills and potential for fire hazards, which could adversely affect marine ecosystem and human activities.

District Rule 461 requires the use of phase I vapor recovery system during transfers of gasoline delivery truck to the facility. On the contrary, there is no requirement to collect the gasoline vapors displaced when the fuel is subsequently transferred to pleasure boats. The control measure A7, in the 1982 AQMP originally proposed the installation of vapor recovery systems to control VOC emissions from refueling gasoline powered pleasure boats and other gasoline powered marine vessels. To

date, no implementation action has been taken or is expected to occur prior to the adoption of this AQMP.

Due to the variety of emission control technology options proposed in the Plan, their impacts could not be adequately addressed since they would require some specific considerations. Some of the measures have already been approved and are being enforced as District Rules, and each received appropriate environmental evaluations. (Rule 1106 - Volatile Organic Compound Emissions From Marine Coatings; was approved by the District Board in November, 1988.) It is expected that as other measures are proposed for implementation, they too will receive appropriate environmental evaluation. The level of significance of risk of upset will then be determined, and appropriate mitigation measures will be required.

4-9.9

COMMENT: **Risks may result from increased electrification in the Basin because of the electromagnetic effects from new transmission lines.**

COMMENTOR: Southern California Gas Company (10/24/88)

RESPONSE: Please refer to Section 4-9 of the FEIR.

4-9.10

COMMENT: **Additional solid waste disposal capacity will be needed as a result of implementing several of the AQMP control measures. These impacts need to be considered in view of the region's solid waste management plan. Coordination with county plans should be achieved.**

COMMENTOR: Southern California Edison (10/27/88)
County Sanitation Districts of Los Angeles County (10/27/88)

RESPONSE: The Solid Waste Recovery Act of 1972 requires that each county prepare a plan for solid waste management in cooperation with cities, unincorporated areas, private industry, and the general public. Counties are then required to review and revise their solid waste management plans every three years to reflect prevailing conditions and any changes in state policy. These revisions are currently under way and stress conservation and recycling. Potential increases in landfill demand may constitute a significant adverse environmental impact. Mitigation of this impact is within the jurisdiction of the local government solid waste planning agencies. Mitigation measures on landfills should be adopted by those agencies.

4-9.11

COMMENT: **The waste resulting from recycled newsprint is a very strong industrial waste. The impacts of such recycling on wastewater collection and treatment facilities needs to be addressed.**

SOURCE: County of Orange, Environmental Management Agency (10/24/88) County Sanitation Districts of Los Angeles County (10/27/88)

RESPONSE: While increased newspaper recycling would result in a larger volume of paper processing wastewater, there are mitigation measures available to reduce the negative impact on publicly owned treatment works (POTWs). Restrictions can be placed on the composition and concentration of industrial wastes discharged into sewers. This "source control" approach places the burden of treating wastes on their producer and prevents the treatment costs from being passed on to the POTW. If such wastes were delivered to the POTW, the costs of treatment would likely be greater, due to the dispersion of the wastes by sewage from all other sources. Source control requirements placed on paper processing wastes provides an incentive for paper recyclers to adopt innovations in production and waste treatment processes in order to reduce their costs. Source control efforts should be monitored to

ensure that wastes are not being transferred to another medium, e.g. de-watered and landfilled.

4-9.12

COMMENT: **The impacts of the magnitude of recycling called for in the Plan should be addressed with respect to the impacts of collecting the materials to be recycled.**

COMMENTOR: County Sanitation Districts of Los Angeles County (10/27/88)

RESPONSE: Collecting materials to be recycled is likely to increase vehicle miles traveled (VMT) and therefore emissions of collection trucks. This may either be offset to some extent, or increased by fewer trips to the disposal site, depending on whether disposal sites are closer to the source of refuse or farther. Emissions from the decomposition of paper in landfills will also be reduced by recycling. Utilizing in-Basin recycled materials as inputs to in-Basin production processes can reduce the need to bring virgin raw materials into the Basin, thus reducing VMT and emissions.

4-9.13

COMMENT: **A) Control of VOC fugitive emissions from Publicly Owned Treatment Works (POTW's) may necessitate the use of activated carbon canisters. Impacts such as transportation and handling of carbon, carbon regeneration and its ultimate disposal needs to be addressed.**

COMMENTOR: County Sanitation Districts of Orange County (10/27/88)

4-9.14

COMMENT: **B) Carbon adsorption technologies produce by-product wastes that include hazardous and toxic materials. The type and quantity of these materials need to be identified and addressed.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: A & B) The use of carbon adsorption systems are discussed in Chapter 4 - Environmental Impacts and Mitigation Measures. These discussions are focused on the VOC emitting sources including:

Surface Coating and Solvents (Section 4-1).

Further Emissions from Rubber Products Manufacturing, Control of Emissions from Soil Contamination, and Control of Fugitive Emissions from Publicity Owned Treatment Works (Section 4-2).

In each of the above source categories, carbon adsorption technologies are recommended as an option to achieve VOC emission reduction. The following discussion addresses the environmental effects from the general use of carbon adsorption systems as a compliance method.

Carbon Handling and Transportation

Hazardous wastes from spent carbon must be transported to a TSDF for disposal or regeneration and are regulated by the EPA, the Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). OSHA specifies the procedures required for using and storing hazardous materials, as well as the permissible exposure level (PEL) of solvents (if they have been determined) to workers in the 29 series of the Code of Federal Regulations (CFR) (see also NIOSH/OSHA, 1981). The DOT specifies the procedures for safely transporting, as well as the procedures to follow in case of accidental spills during transport, in the 49-CFR series of regulations (parts 100 through 177). The EPA in the 40-CFR series and the DOT in the 49-CFR series specify the requirements for proper labeling and placarding of hazardous substances. In addition to the above regulations, the American National Standards Institute (ANSI, 1981) recommends safety procedures for handling and storing hazardous materials.

The best assurance for avoiding accidents due to equipment failure or human error is to observe all rules and regulations for the construction and operation of required equipment (Benchley and Athey, 1981). Particularly important are preventative maintenance on the equipment and observing proper safety practices in handling such equipment and any hazardous substances.

In the event of an accidental release of hazardous substances, the following procedures are recommended by the Chemical Hazard Response Information System (CHRIS) (DOT, 1984): issue warnings of a poisonous spill; evacuate the area; restrict access to the area; and flush the area with water to dilute and disperse the hazardous material. If the accidental release occurs in an area where it can be contained, the hazardous material must be diluted and kept in a holding area, where it can be reclaimed or treated and released to the sewer (Joseph, 1985).

The DOT (1980, Guidebook) also recommends contacting Chemical transportation Emergency Center (CHEMTREC), which is a public service information agency of the Chemical Manufacturers Association. CHEMTREC provides immediate advice for those at the scene of emergencies and then promptly contacts the shipper of the hazardous materials involved for more detailed assistance and appropriate follow-up.

When taken together the above regulations and recommendations provide comprehensive measures to reduce hazards that could occur when handling hazardous materials.

Carbon Regeneration and Disposal

The control of organic and chlorinated organic compounds from several sources may require the use of carbon adsorption systems. This control technique utilizes activated carbon to remove organic vapors from an exhaust stream via adsorption and has the potential to transfer gaseous wastes into solid and/or hazardous waste.

Carbon which has been used to control emissions may be disposed of or recycled in a number of different ways. These options include:

Spent carbon may be reactivated or regenerated for further use.

Organic compounds adsorbed to the carbon may be recovered for reuse or recycling.

Carbon may be disposed of to a hazardous waste landfill (Class I) or a nonhazardous waste landfill (Class II) depending on the constituents present.

Carbon pellets or disposable carbon filters may be incinerated to destroy toxic constituents.

These options are not mutually exclusive, but may be combined in various methods to provide the most cost effective use of carbon for a given situation. Several factors would determine the most appropriate management plan for the handling of spent carbon from a particular facility. These factors would include the amount of spent carbon generated, the availability and cost of regeneration facilities, the classification of spent material as either hazardous or nonhazardous, and the cost and availability of material recovery systems. Various methods for management of spent carbon are outlined below.

Method 1 - After the carbon pellets are saturated with organic solvent vapors, the solvent is recovered and the carbon is reused in the system. After the carbon has lost its adsorptive capacity, it is disposed of as nonhazardous waste after the final solvent recovery cycle.

Method 2 - Carbon pellets used in a carbon adsorption system are reactivated in a system which can destroy volatile organics as they are driven off the carbon matrix. After the useful life of the carbon has passed, the volatile organics are driven off the carbon and destroyed and the carbon is recycled for other uses or disposed of as nonhazardous waste.

Method 3 - Disposable carbon filters are used to collect vapors. The filters sealed in plastic bags and incinerated after use.

Method 4 - Carbon is analyzed after one use to determine if it would be classified as hazardous waste. It would then be disposed of as hazardous or nonhazardous waste depending on the outcome of the tests.

In Methods 1 and 2 described above, there would be no hazardous waste generated, except perhaps from a reactivation process. In Method 3, wastes would require incineration, however, there would be no long term residues after treatment. Method 4 would result in the generation of wastes, however, this may not be the preferred option for many carbon adsorption systems due to the high replacement costs for carbon and possible long term liability problems with respect to waste disposal.

Carbon used for carbon adsorption eventually becomes saturated with solvent materials and needs to be replaced or regenerated every 5 - 10 years. Generally, the carbon is removed and sent to a treatment storage, and disposal facility (TSDF) where it is either disposed of, or regenerated by injecting steam through the carbon bed. The steam/solvent mixture is then cooled to the liquid phase. Since the majority of solvents are nonaqueous, most of the solvent mixture can be removed from the water by distillation, although traces of solvent remain in the water.

Additionally, during the interim period of carbon reactivation, a system panel including carbon is available at a approximate cost of $100.00 per panel. The facility is located in Wilimington, California with a turn around period of one week. In the event of an overflow, carbon could be transported to a facility currently under construction in Kingman, Arizona and returned within 10 to 14 days. The Wilimington facility maintains the responsibilities of handling, transporting and regeneration of carbon. in accordance with DOT. (Cook, 1988)

The amount of toxic materials from the use of carbon adsorption systems are difficult to determine because of

undetermined factors, such as the number of VOC emitting sources which would select carbon adsorptions as the compliance method and the volume of their activity.

However, based on certain assumptions, the following example was developed to estimate the quantity of hydrocarbon waste from Wood Coating operations. The liquid hydrocarbon wastes collected from carbon adsorber regeneration are 1,889 gal/yr. for a system controlling a spray booth which operates at 10,000 - 30.000 SCFM. Assuming 850 furniture manufacturers chooses carbon adsorption as a control technology, and each manufacturer has, an average of two spray booths, a total of 3,211,300 gal/yr. would be generated. This liquid hydrocarbon waste can be burned in a cement kiln, unless it contains a large concentration of toxic materials, in which case it would have to be burned in a toxic incinerator.

When the liquid hydrocarbons are separated by distillation, water containing soluble hydrocarbons remain. It can be disposed of by various methods, depending on its composition and concentration. Water with low hydrocarbon concentrations can be subjected to air stripping or ozonation to remove or destroy the hydrocarbons. Liquid waste with high concentrations of hydrocarbons or containing over 5% chlorinated hydrocarbons can be used as cement kiln fuel. If large amounts of toxic materials are present, the waste must be burned in a toxic incinerator. An alternative disposal method, landfilling, is usually not chosen, since the hydrocarbons may leak into the air or water.

The representative carbon adsorption system analyzed contains 3549 lbs. (118.3 ft_3) of carbon. Carbon requirements for the 850 Basin manufacturers, assuming an average of two spray booths and two carbon beds per manufacturer would thus total 6,033,300 lbs or 3398 tons. Since the lifetime of the carbon bed is five to ten years, over a five year period, the 603.3 tons would need to be landfilled annually. Even if the carbon were required to be disposed of in a Class I landfill, sufficient capacity remains to accomplish this.

Additionally, according to the EPA (EPA, 1980a), most carbon from carbon adsorption units is reclaimed and reactivated, resulting in negligible impacts on solid waste disposal.

SECTION 4-10 POPULATION

4-10.1

COMMENT: **The population forecast should be examined in light of the Plan. The control measures included in the Plan are likely to affect growth that occurs in the Basin.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: AQMP measures with no primary or secondary impacts on population may result in economic changes that lead indirectly to changes in the amount, timing, and location of population growth. Cumulatively, stationary source and mobile source controls may lead to restructuring of certain sectors of the regional economy and the number and types of jobs it will support. Availability of employment is a major locational factor. A sustained increase or decrease in the availability of jobs for any major economic sector, such as aerospace or construction, could generate population shifts away from or toward affected subregions within the Basin. A sustained increase or decrease in the availability of jobs for any major economic sector relative to the rest of California and the nation could lead to population shifts into or out of the region.

4-10.2

COMMENT: **Discrepancies between SCAG's population projection and the Department of Finance population projections need to be addressed.**

COMMENTOR: City of Buena Park
City of Los Alamitos
City of Fullerton (10/27/88)
Orange County Board of Supervisors (10/27/88)

RESPONSE: SCAG has developed and analyzed the GMA-Low population projection alternative, which incorporates the Department of Finance's projections for the region, in response to the discrepancy between the preferred GMA-4 Modified Jobs/Housing Balance projection and DOF figures. The GMA-low projection results in a total regional population of 17.1 million, 1.12 million lower than the GMA-4 Modified Jobs/Housing alternative. The GMA-Low projection is predicted on dramatically lower ethnic fertility rates than currently experienced in the region. However, mitigation assumptions for the GMA-Low and GMA-4 alternatives were held constant. In the Draft EIR for the Draft Growth Management Plan, SCAG indicates that the GMA-Low alternative yields for a lower regional jobs/housing ratio than the preferred GMA-4 alternative.

4-10.3

COMMENT: **How will the AQMP be coordinated with the SCAG Housing Needs Assessment and the Growth Management Plan?**

COMMENTOR: City of Moreno Valley

RESPONSE: The AQMP Growth Management Control Measure assumes amounts and distribution of future population growth projected in the GMA-4 Modified alternative, which defines a regional total population of 18.3 million persons. This projection also defines a subregional distribution of the total regional population. As local governments implement this population distribution through their local general plans, zoning ordinances and project reviews, they will be called upon to respond simultaneously to regional housing needs for low and moderate income housing stated in the Regional Housing Needs Assessment (RHNA). The RHNA sets forth the

proportion of jurisdiction's housing stock that should be low or moderate income in order to serve the projected population and projected distribution of household incomes in an area. Local governments will be responsible for balancing population and housing growth with the distribution of housing types called for by the RHNA in their general plan housing and land use elements.

4-10.4

COMMENT: **The socioeconomic impacts of population relocation need to be addressed with greater depth and clarity.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Please see the revised socioeconomics section of the draft FEIR concerning jobs/housing balance impacts.

4-10.5

COMMENT: **In the impact section on mode shift strategies, the economic dynamics of why people choose houses and jobs should be addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Generalized discussion on economic theories or individual economic strategies is beyond the scope of an EIR. An EIR addresses potential physical impacts in sufficient detail to allow for informed decision making It need not be "encyclopedic" presenting information only incidental to this purpose.

4-10.6

COMMENT: **The mechanisms to implement jobs/housing balance should be addressed in the Plan or the EIR.**

COMMENTOR: WOGA (10/27/88)
Orange County Board of Supervisors (10/27/88)

RESPONSE: More detailed information on the growth management strategy can be found in Appendix IV-G Growth Management Plan.

4-10.7

COMMENT: **The setting section provides percentage values for work forces that would have to adopt alternative work schedules, locations, or telecommute to work. This appears to contradict the statement of page 4-10-1 that "The potential magnitude of population relocation is not known at this time...", thus neglecting to address impacts on housing and population.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Housing and transportation impacts are discussed in Chapter 4 of the EIR. The Setting section (Chapter 2, Existing and Forecast Setting in the Basin) refers to general population and housing data. The comment refers to "relocation" which is a different matter than assessing the overall impacts of the population and housing changes called for in the plan. The potential impacts of the plan on the population's relocation decisions (as compared to the location decisions of new residents or newly forming households) are not known at this time.

4-10.8

COMMENT: **Expansion of the freeway system will exacerbate an existing problem.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of freeway expansion are addressed in Sections 4-7, 4-12, and 4-18.

SECTION 4-11 HOUSING

4-11.1

COMMENT: **What is meant exactly by jobs/housing balance and growth management? This needs to be clarified and analyzed in greater depth.**

COMMENTOR: City of Claremont

RESPONSE: The AQMP DEIR incorporates by reference detailed analysis of jobs/housing balance contained in the regional Growth Management Plan and its accompanying DEIR prepared by SCAG. These two documents provide extensive background information on the nature and impacts of growth management to achieve jobs/housing balance.

Within the context of the AQMP DEIR, the Growth Management Control Measure involves shifting 5 percent of projected future housing growth to "job-rich", subregions, while simultaneously shifting 9 percent of projected future job growth to "housing-rich" subregions in order o reduce the total number of Vehicle Miles Traveled during commuting. This reduction in VMT will result in reduced mobile emissions, a major source of pollutants. The Growth Management Control Measure does not propose any reduction in the total amount of regional housing growth, as a result of either air quality controls or jobs/housing balance efforts carried out by local governments and subregions. Only the subregional allocation of housing and jobs would be affected by these measures.l Generally, housing growth would be increased in the coastal counties of Los Angeles and Orange, and reduced in the inland counties of San Bernardino and Riverside. The converse would be true for allocation of job growth.

4-11.2

COMMENT: **The proposed jobs/housing balance measures may affect the Inland Empire more than Los Angeles or Orange Counties.**

COMMENTOR: Building Industry Association of Southern California, Inland Empire Economic Council

RESPONSE: In terms of housing impacts, the proposed jobs/housing balance measure would affect the Inland Empire differently from the coastal counties of Los Angeles and Orange. Subregions in San Bernardino and Riverside Counties are housing-rich and would forego five percent of the future housing growth that would otherwise occur there. This would reduce the total housing stock and could result in less flexibility for local governments to meet their low and moderate income housing targets. In contrast, Los Angeles and Orange Counties would increase housing five percent over levels that would otherwise occur, This would increase competition for scarce residential land, which would drive up land values and, ultimately, housing prices. Local governments may chose to respond to this pressure by recycling or redeveloping areas currently committed to other c uses or less intense levels of residential development. This land would be more expensive than raw,undeveloped land due to the complexity of removing and rebuilding the housing stock, which would increase the cost of housing. Given the constraints on available land, units built in Los Angeles and Orange Counties are likely to be smaller, more dense, more expensive and, in some impacted low income areas, more overcrowded, than those built in the Inland Empire.

4-11.3

COMMENT: **Decreasing vacancy rates and rising household size are probable results of building permit limitations.**

COMMENTOR: State of California, Department of Housing and Community Development

RESPONSE: The GMA-4 Modified Jobs/Housing Balance projection, which is the foundation for the Growth Management Control Measure, assumes an optimal vacancy rate for the region which is consistent with the goal of the Regional Housing Needs

Assessment - two percent for single family homes, and five percent for multifamily homes. However, selected subregions may experience housing shortages relative to the number of jobs or the ability of households to pay as local governments and the market attempt to meet the need for housing units in the face of land use constraints, the high cost of land, and personal preferences for one area over another.

Residential building permit limitations are not specifically called for in the Growth Management Control Measure. The Draft Growth Management Plan, Appendix 2, identifies seventeen different techniques that can be used by local governments to achieve jobs/housing balance. These include a variety of incentive and disincentive techniques, in addition to more quantitative approaches such as housing permit quotas. The Growth Control Measure is designed to allow local governments and subregional entities to determine the combination of jobs/housing balance measures they prefer to implement.

4-11.4

COMMENT: **According to a USC study, a 10 percent drop in construction jobs in Southern California doubles the unemployment rate. This could have a significant impact on the Southern California economy.**

COMMENTOR: Building Industry Association

RESPONSE: Refer to the Economic Impact Section 4-18..

4-11.5

COMMENT: **Growth Control may exacerbate the current problem of increased housing costs by limiting the supply of permits and available land.**

COMMENTOR: State of California, Department of Housing and Community Development

RESPONSE: As noted in Response 4-11.3 above, the Growth Management Control Measure, could increase housing costs in Los Angeles and Orange Counties due to scarce residential land and high land costs. Even if sufficient land is made available through recycling and redevelopment, that land will be more expensive than raw land as a result of the costs of conversion. Local governments could chose to encourage lower housing costs under these circumstances by planing and zoning for higher densities. Developers could encourage lower housing costs in the coastal counties by building smaller units at higher densities. In the inland counties, available residential land may be redesignated to other employment-generating uses in order to encourage jobs/housing balance, thus reducing the amount available for future housing development. This reduction of available residential land in the Inland Empire could lead to higher land costs in the future.

To the extent that local governments and subregional entities in San Bernardino and Riverside Counties to choose to implement a reduction in housing growth by means of housing permit limitations, higher costs could result until excess demand for this housing is shifted back to subregions with a surplus of jobs. As stated, previously, permit limitations are only one of many techniques to implement jobs/housing balance.

4-11.6

COMMENT: **Close proximity of jobs to housing (i.e., jobs/housing balance) does not necessarily guarantee reductions in commute length. This issue should be addressed.**

COMMENTOR: City of Buena Park

RESPONSE: The Growth Management Control Measure will not change the calculus that individual wage-earners consider in making

job and housing choices. Salary and advancement opportunities will continue to be major considerations, but the cost and effort involved in commuting will begin to alter both the employee's and employer's assessment of this choice. Given employers' needs to comply with Regulation XV, availability of nearby housing will become important. At an aggregate level, the Growth Management Measure provides every reasonable incentive for workers to avoid increasingly costly, time-consuming commutes by providing a spectrum of housing opportunities within each subregion.

4-11.7

COMMENT: **Implementation of jobs/housing balance could lead to premature escalation of housing prices in the outlying areas of the Basin, reducing the availability of affordable housing in the region. This issue needs to be addressed.**

COMMENTOR: City of Buena Park

RESPONSE Residential land costs could rise in urbanizing portion of the region due to reduced projections for housing growth if local governments redesignate and rezone formerly residential land for job-generating land uses. However, this could stabilize as alternative housing options are available in coastal counties, thereby relieving demand for housing in outlying areas. In the meantime, developers and buyers could respond by favoring smaller units or more dense housing configurations in outlying areas. Higher land costs that raise housing prices might lead to multiple wage earners in each household in order to afford the typical single family detached home.

4-11.8

COMMENT: **How will implementation of programs to achieve region wide jobs/housing balance affect that same goal on a local level?**

COMMENTOR: City of Moreno Valley

RESPONSE: The region wide jobs/housing balance program is built on subregional and local jurisdiction jobs/housing balance efforts. To the extent that local governments incorporate the same region wide goals of bringing housing and jobs in closer proximity to each other into their general plans, regional and local efforts should not result in any adverse impacts on each other.

4-11.9

COMMENT: **Address how jobs/housing balance may adversely affect the lower income groups more significantly than other groups.**

COMMENTOR: City of Fullerton, The Irvine Company

RESPONSE: Refer to Economic Impact Section 4-18.

4-11.10

COMMENT: **What effect will implementation of the AQMP have on current state housing requirements for local jurisdictions?**

COMMENTOR: City of Moreno Valley

RESPONSE: The Growth Management Control Measure assumes that all existing state planning requirements will be met while complying with the AQMP goal of reducing emissions through closer proximity of housing and jobs. Thus, local jurisdictions will still be expected to address their fair share of the region's low and moderate income housing needs proportionate with their share of the region's current and future housing stock.

4-11.11

COMMENT: **The growth management projections used in the AQMP do not account for the economic impacts that may result from implementation of the control measures.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The potential impacts on growth resulting from socioeconomioc changes are addressed in Section 4-18.

4-11.12

COMMENT: **Implementation of energy conservation measures will require state support in the form of ballot measures or legislative action.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Implementation of this and other measures is addressed in the Plan and comments to the Plan.

SECTION 4-12 TRANSPORTATION

Tier I Measures

4-12.1

COMMENT: **Extensive use of alternative fuels will require special arrangements to be made in order for people to travel into and out of the Basin. These changes need to be addressed.**

COMMENTOR: Blue Diamond

RESPONSE: Two types of travel would be affected at the interface between the Basin and surrounding areas: fleet vehicle travel, and private passenger automobile travel. Measure G-2, Clean Fuels in New Fleet Vehicles, calls for operators of fleets of 15 or more vehicles to add new vehicles or replace old vehicles with cars, trucks, or buses capable of operating on an alternative fuel. As the measure states, "The most likely alternative will be the purchase of flexible fuel vehicles, which are able to operate on gasoline or methanol." Such fleet

vehicles make up an estimated 6% of the total vehicles in the region. The SCAQMD estimates that 15 to 30% of fleet vehicles will be able to use alternative fuels by 2000. Thus, no adverse impact on inter-basin travel is expected as a result of fuel availability.

Tier II Transportation Sector controls call for conversion of 40% of passenger vehicles to alternative fuels such as methanol or electrification, starting after 1993. As a result, roughly 40% of autos operating in the Basin could have difficulty travelling more than a 200-mile round trip distance outside the Basin without special consideration for refueling or recharging if economic and environmental conditions in other basins do not necessitate the same modifications in travel technology. Automobiles operating with an electric rail or other form of automation would not be able to travel outside the portions of the Basin specially equipped for these vehicle to operate. Residents of the Basin who own vehicles adapted solely for alternative fuels or electrification would need to substitute rental cars, commercial long-distance buses, airlines or rail for travel to areas outside the Basin that do not have alternative fuel or recharging facilities.

Refer to the economic section (4-18) for other impacts associated with the use of alternative fuels.

4-12.2

COMMENT: **The mitigation mentioned on page 4-12-15 appears to be in conflict with the measure 2-B Parking Management Controls. However, these additional paved areas could be used as transfer points for auto-restricted zones.**

COMMENTOR: Caltrans District 12

RESPONSE: The DEIR acknowledges that paving unpaved lots to control particulates could work at cross-purposes in some areas where parking demand is high and subject to parking management regulations. As further indicated in the DEIR, local land use

planning and zoning can eliminate these potential conflicts before they are realized. Alternatively, local governments can insure that any new lots created in parking management zones as a result of paving for particulate control are reserved for carpools, park and ride lots, or other parking purposes that reinforce mode shift controls.

4-12.3

COMMENT: **Fewer buses than anticipated may operate because of the increased costs of alternative fuels. These impacts need to be considered.**

COMMENTOR: City of Buena Park

RESPONSE: Loss of transit service as a result of higher alternative fuel costs which cannot be covered by increased farebox revenues or operating subsidies is an indirect transportation impact which could stem from economic impacts of proposed alternative fuel control measures. Routes with low ridership many of them in suburban areas without a critical mass of riders, are most likely to be affected as they would require the highest subsidies relative to their impact on congestion and air pollution. This could encourage greater patronage of commuter or express buses operated by user fees or subscriptions designed to carry commuters to specific work concentrations without providing round-the-clock transit service to a broader range of locations.

4-12.4

COMMENT: **Measures to require trip reduction plans for airport facilities would affect the ability for passengers and airline employees to access the facility. These impacts need to be addressed.**

COMMENTOR: Airport Transit Association

RESPONSE: Trip reduction requirements included in the Airport Ground Access control measure would improve airline passenger and

employee access to airport facilities by reducing congestion in the airport adjacent area. Achieving this positive transportation impact will involve some individual travel behavior changes, including using shuttles, remote parking, satellite terminals, and off-peak flights. Transportation facilities such as remote parking lots and satellite terminals will need to be provided or expanded.

4-12.5

COMMENT: **Federal agencies preempt any local or state regulations with respect to aircraft certification and operating regulations.**

COMMENTOR: Air Transport Association

RESPONSE: This is correct, but does not contradict the emission reductions and beneficial transportation impacts identified in the AQMP and DEIR. Rather, the control measure describes a desirable federal government contribution to the Basin's emission reduction effort, and will serve as the basis for negotiating federal support for Basin air pollution controls.

4-12.6

COMMENT: **Major changes would be expected to take place as a result of controls on aircraft taxiing, idling, and departure. These impacts need to be addressed.**

COMMENTOR: Air Transport Association

RESPONSE: Aircraft and Ground Vehicle controls could result in changes to aircraft taxiing, idling, and departure, as airport operators select form a variety of implementation techniques to cut emissions from aircraft and ground service vehicles. These efforts include increased airline service during off-peak hours to cut taxi and idle time, increased aircraft towing to avoid engine idling,and bad weather take-off congestion management procedures to reduce idling and taxiing emissions.

Positive transportation impacts of these measures include reduced passenger delays, better ground access due to a more evenly spaced departure schedule. No negative transportation impacts are expected from these changes in aircraft, airline and airport operations.

4-12-7

COMMENT: **There should be some discussion of the fact that transportation improvements need to be integrated with land use measures.**

COMMENTOR: Caltrans District 12

RESPONSE: Land use impacts of transportation measures are detailed in Section 4-7, Land Use, and the transportation impacts of land use measures (jobs/housing balance) are discussed in Section 4-12. SCAG's GMA-4 Modified projection provides consistency among these measures. The GMA-4 Modified projection sets forth the amount, timing, and distribution of population, job, and housing growth for the future. Transportation improvements recommended in the Regional Mobility Plan are scaled to serve the populations, housing and job growth and distribution projected in GMA-4. However, the phasing of transportation improvements relative to growth projections would play a major role in integrating transportation and land use measures. This would be accomplished by government agencies working through the planning and public review and comment process.

4-12.8

COMMENT: **The socioeconomic issues limitations on vehicle registration should be addressed.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The socioeconomic impacts of the Plan are addressed in Section 4-18.

4-12.9

COMMENT: **It is unclear what the projected benefits from mode shift strategies measure are based on, and these benefits are likely to be grossly overstated.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: An explanation of the control measure, proposed method of control, and references are presented in Appendix IV-G Land Use, Transportation and Energy Conservation Measures.

4-12.10

COMMENT: **An undue burden could be placed on certain economic sectors if exemptions to employee rideshare incentives for employers of 25 or more are not provided to employees that work irregular hours.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The economic impacts of employee ridesharing and transit incentives are addressed in Section 4-18.

4-12.11

COMMENT: **Traffic flow improvements should be instituted instead of, not in addition to, massive increases in freeway capacity.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The AQMP is intended to attain federal standards for criteria air pollutants. Each of the measures described in the Plan, as

well as the potential for additional contingency measures, is needed to meet the standards.

4-12.12

COMMENT: **The measure to reduce non-recurrent congestion, as well as other efficiency-based measures, should be implemented in the near term.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: An implementation schedule for the control measures in the Plan are provided in Chapter 6 of the AQMP.

SECTION 4-13 PUBLIC SERVICES

4-13.1

COMMENT: **The ability of public agencies and local jurisdictions to provide public services in light of the additional requirements that would result from the Plan need to be more thoroughly analyzed.**

COMMENTOR: Southern California Edison (10/27/88)
Southern California Gas Company (10/27/88)

RESPONSE: Since the AQMP is intended to represent a guideline for implementing measures geared towards the attainment of Tier I, II and III goals, the details of funding source and mechanism will be addressed in the evaluation of various program measures. However, for the South Coast AQMD (stationary source) portion of the Plan, funds will be generated through applications and permit fees, and emissions charges.

With regard to the regulated industries, these industries would finance the installation of control technology and/or compliance cost. Cost may in any case be transferred to the

end user in the form of utility fees or price of commodity produce by the respective industries.

Elements such as utilities, transportation and other infrastructure improvements, which are normally provided by the public sector, could require legislative actions to appropriate funds for their implementation. The EIR could not adequately address these specific issues because of the magnitude of the measures, and the scope of details required to adequately discuss them.

4-13.2

COMMENT: **Difficulty with obtaining regulatory permits and enforcement.**

COMMENTOR: Southern California Edison (10/27/88)
City of Pomona (10/27/88)
Caltrans (10/20/88)
City of Buena Park (10/26/88)
City of Tustin (10/27/88)
City of Long Beach (10/22/88)
Ira Reiner, Los Angeles District Attorney (10/27/88)

RESPONSE: Please refer to Chapter 4 of the EIR, Subsection: District Impacts, pages 4-13-7 and 8.

4-13.3

COMMENT: **Inter-jurisdictional problems (with regard to land use and regulations matters), which transcend beyond jurisdictional boundaries.**

COMMENTORS: Southern California Edison (10/27/88)
City of Pomona (10/27/88)
Caltrans (10/20/88)
City of Buena Park (10/26/88)
City of Tustin (10/27/88)
City of Long Beach (10/22/88)
Ira Reiner,Los Angeles District Attorney (10/27/88)

RESPONSE: The issue of inter-jurisdictional problems may not be adequately mitigated by this document because of the scope of issues and elements of the Plan. However, the approach to resolve some of the problems will be to establish working groups or committees to review each aspect of the Plan, and to recommend measures necessary to attain the goals of the Plan, while reducing levels of conflict between various governmental bodies. This approach have worked in other District Rule and, while it requires a great deal of coordination, it also requires co-operation among concerned agencies.

In order to facilitate resolution of inter-jurisdictional problems, immediate or timely notification of the District once a conflict has been identified is highly recommended. Such action would necessitate early response to review and address the conflict. In some cases, a legislative action may be required to address the problem, and working within a committee would convey to the legislature a strong message that the conflict has been given appropriate scrutiny and should therefore be resolved by them.

The Proposed Plan would have an effect upon local, state and federal services. In response to this comment, please refer to Chapter 4 of the EIR, Subsections: Fire and Police Protection, Residential and Public Sectors, Others, and Schools, on pages 4-13-1 through 4-13-8.

4-13-4

COMMENT: **It is unclear how the discussions in the section on control of emissions from OCS Exploration, Development, and Production relate to impacts on fire and police protection.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: This discussion was intended to note that increased generation of hazardous wastes may affect the level of services provided by fire departments in order to respond to accidental spills.

4-13.5

COMMENT: **Increased waste minimization from Publicly Owned Treatment Work is unlikely because current laws require significant waste minimization. THerefore increases in hazardous waste from additional controls seems likely.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of increased generation of hazardous waste are addressed in Section 4-9.

4-13.6

COMMENT: **Livestock wastes cannot be used for energy generating purposes without generating air emissions.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The potential air emissions can be mitigated through use of add-on controls.

4-13.7

COMMENT: **Siting of new schools in urban areas near industrial areas may require extensive site investigation and remediation**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Comment noted. Such activities are the responsibility of local governments. Impact analysis is too speculative given general nature of proposed project.

4-13.8

COMMENT: **Quantification is needed on magnitude of impacts on the District.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The magnitude of the impact depends upon District budgeting decisions which cannot be foreseen in a quantitative manner at this time.

SECTION 4-14 ENERGY

4-14.1

COMMENT: **Energy conservation should be stressed.**

COMMENTOR: Building Industry Assoc. of So. Calif.
Ken Barber - Kirkhill Rubber Co.
Sierra Club - L.A. Chapter (10-27-88)
Southern California Gas Company (10/27/88)

RESPONSE: The energy conservation measures described in the AQMP are targeted to achieve a 15% reduction in energy use by the year 2000 and a 30% reduction by the year 2010. These are ambitious, though cost-effective, energy reduction goals. Additional conservation could be achieved by further local government, utility, and industry programs to tap the remaining cost-effective conservation potential.

4-14.2

COMMENT: **Has the review process included consideration of the California Energy Commission?**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The District has worked with the CEC and incorporated their comments into the Plan.

4.14.3

COMMENT: **The implications of the extensive electrification strategy included in the Plan need to be addressed in more detail. The amount of additional electricity required and the changes this would bring about need to be considered.**

COMMENTOR: Blue Diamond (10/11/88)
City of Santa Ana (10/27/88)
Orange County Board of Supervisors (10/27/88)
Southern California Edison (10/27/88)
Southern California Gas Company (10/27/88)
Southern California Gas Company (10/24/88)
WOGA (10/27/88)

RESPONSE: The electrification strategy has been refined and now requires less capacity and energy than previously anticipated. Below are the electrification measures, by Tier, and their energy and capacity needs.

SUMMARY OF ENERGY AND CAPACITY NEEDS FOR TIERS I, II, AND III

TIER	MEASURE	ENERGY (GWH/YR)	CAPACITY (MW) DAY	NIGHT
TIER I				
	IC Engines Utility Equipment Cold Ironing Transit Buses Rail Electrification			
TOTAL		**2,500**	**300**	**200**
TIER II				
	50% Industrial Electrification 20% Passenger EV			
TOTAL		**18,000**	**1,400**	**2,700**
TIER III	100% Passenger EV	40,000	2,700	6,300
TOTAL OF ALL TIERS		**60,500**	**4,400**	**9,200**

To meet the requirements of the revised electrification strategy, a new electricity supply matrix has been developed:

REVISED ELECTRICITY SUPPLY MATRIX

SOURCE OF SUPPLY	CAPACITY (MW) DAY	NIGHT
IN-BASIN		
Conservation	2,800	
Solar Power	1,500 - 2,000	
Solar/Fuel Cell EVs	300 - 1,000	900 - 2,600
Off-peak Excess		4,000 - 5,000
Fuel Cells		500 - 1,000
Repowering	1,000 - 2,000	
OUT-OF-BASIN		
Hydropower		500 - 1,500
TOTAL SUPPLY	**4,600 - 5,800**	**6,900 -12,000**

The revised electricity supply matrix shows that the additional capacity projected is sufficient to meet the projected additional demand from the electrification program.

4-14.4

COMMENT: **Is there background documentation to support the assumption that 20 percent of the passenger vehicle fleet will be electrified?**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Electrification of the vehicle fleet and the assumptions used in setting the goals in the AQMP are detailed in Appendix IV-B Tier II Control Strategy: Energy Future.

4-14.5

COMMENT: **Liquid and solid fuels should be considered for back-up use only by making natural gas curtailment less likely through improved storage and gas systems.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The "setting" addresses control measures requiring alternative fuels to be used and for liquid and solid fossil fuels to be phased out. The AQMP does not advocate, but in fact discourages, use of liquid and solid fossil fuels.

4-14.6

COMMENT: **Is there documentation for the assumption that 100 percent of the vehicle fleet could be electrified?**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Documentation on the electrification strategy contained in the AQMP is provided in Appendix IV-B to the Plan. The environmental impacts of the electrification strategy, as described in the Plan, are discussed in Sections 4-14, 4-15, 4-18, and 4- of the FEIR.

4-14.7

COMMENT: **The discussion of phasing-out petroleum based fuels does not address secondary impacts this may have on the economy, housing, and population.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The AQMP does not prohibit operation of petroleum refineries in so far as they can comply with the emission limitations described in the AQMP. Potential secondary impacts resulting from closure of industries unable to comply with District regulations are addressed in Section 4-18 which deals with socioeconomic impacts.

4-14.8

COMMENT: **Significant amounts of hazardous wastes may be produced as a result of batteries that would be used to power automobiles as a result of the electrification strategy contained in the Plan. These waste impacts need to be discussed.**

COMMENTOR: Southern California Gas Company (10/24/88)

RESPONSE: The expanded market for batteries due to vehicle electrification should make recycling of battery components more cost effective. Unrecycled components would constitute a solid waste impact. To the extent these wastes would be deemed hazardous, they would impact hazardous waste site capacity. County solid waste management agencies should take these impacts into account in formulating waste management plans.

4-14.9

COMMENT: **The impacts on areas outside the Basin as a result of the Plan need to be considered in greater depth.**

COMMENTOR: Blue Diamond
Orange County Board of Supervisors (10/27/88)
Southern California Edison (10/27/88)
Southern California Gas Company (10/24/88)
Southern California Gas Company (10/27/88)

RESPONSE: The revised electricity supply matrix shown above does not rely on additional out-of-Basin generation resources, except for 500 - 1,000 MW of hydropower to meet nighttime demands. The source of this hydropower capacity is likely to be the Pacific Northwest or Canada. Additional transmission infrastructure may be needed to deliver this supply to the Basin. Though the specific amounts of capacity available from each generation source may change , it is expected that the total capacity needed can be provided. If one generation source does not achieve as much capacity as indicated in the supply matrix, further development of the other resources is expected to be able to contribute the remainder.

4-14.10

COMMENT: **It is unclear if railroad electrification includes both freight movement and passenger service on those lines that have dual coverage.**

COMMENTOR: Caltrans District 12 (10/24/88)

RESPONSE: Railroad electrification and the emissions reductions attributable to it in the AQMP include both passenger and freight transport. The "line haul" routes which are best suited for electrification include those on which AMTRAK operates the only passenger service in the Basin.

4-14.11

COMMENT: **The differing needs of an electricity distribution system that would be needed to charge vehicles may be substantially different form the current system (e.g., reliability, levels of service, convenience). These potential changes need to be addressed.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Charging EVs at night avoids much of the added infrastructure (transmission and distribution lines, substations, etc.) of a "traditional" building program which would be needed for daytime EV charging. As electric vehicle penetration increases, it is plausible to expect that cost-minimizing approaches to EV charging will develop. For example, EV charging could be done at neighborhood or area centers where commuters would meet for carpooling or vanpooling in EVs.

Lower rates could be offered for EV charging if this service was expected to be provided at lower reliability than conventional service. (However, slightly less reliable nighttime charging service should not significantly impact EV reliability or range, because most power outages are of short duration and thus do not significantly affect total charging time.)

Implementation of jobs/housing balance measures in the Growth Management Plan would mean a closer proximity of low-demand residential customers with high-demand commercial and industrial customers. This would reduce somewhat the need for additional distribution capacity for the nearby residential users for nighttime EV charging, since the distribution infrastructure for high-demand customers would already be in place in these areas.

4-14.12

COMMENT: **Controls on ground service vehicles in the air transport industry will likely result in increased use of electric-powered vehicles. This increased energy demand needs to be taken into account.**

COMMENTOR: Air Transport Association (10/15/88)

RESPONSE: Although there is no known experience with the use of electric-powered ground service vehicles on which to base electricity consumption, an estimate can be made by relying on plausible assumptions.

In 1986, ground service vehicles at Los Angeles International Airport (LAX) consumed 2915.7 gallons of fuel per day (Los Angeles Department of Airports, 1988), while servicing a demand of 40 million air passengers (MAP). In annual terms, the fuel consumption was 1,064,230 gal. By the year 2000, air passenger demand for all airports in the in the Basin is projected to reach 97.4 MAP. This is a 143.5% increase and would result in an annual fuel usage of 2,591,400 gal. Using the conservative assumptions of 10 miles/gallon and 1 mi/kWh, the fuel-to-electricity conversion ratio would be 10 kWh/gal. Thus, 25,914,000 kWh, or 26 GWh, would be used by electric ground service vehicles in the year 2000. This is a small fraction (.04%) of the projected additional 60,500 GWh needed for AQMP implementation (Tiers I - III).

4-14.13

COMMENT: **Increased demands for electricity from Tier I and Tier II strategies have not been estimated. In particular, Tier I will affect electric utilities most by aggregating their minimum load conditions. These impacts need to be addressed.**

COMMENTOR: Public Utilities Commission (11/7/88)

RESPONSE: Daytime demand increases for Tier I measures total 300 MW, an amount which could be met with energy conservation or solar power. Electricity supply and demand estimates are outlined in the response to the above comment.

4-14.14

COMMENT: **The emission reductions estimated to result from introduction of electric vehicles is underestimated.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: In order to be conservative in estimates of the emission reduction potential of electric vehicles (EVs), an energy usage

rate of 1 kWh/mi was assumed. If EV technology advances beyond this efficiency level, emission reductions would be greater than projected in the AQMP.

The degree of emission reduction from vehicle electrification depends on the emissions from electricity generation. To the extent that electricity supply for EVs is generated by clean in-Basin sources or out-of-Basin sources, these emission reductions could be maximized. However, if vehicle electrification requires in-Basin electricity generation from fossil-fueled plants, the emission reductions would be less.

Emission reductions from vehicle electrification are calculated using the baseline of the Basin's present and future vehicle emission inventory. Emissions per vehicle are expected to decline as the vehicle stock is modernized with more efficient and lower-emitting vehicles.

4-14.15

COMMENT: **The projections in electrical capacity do not account for increases in electricity demand due to population growth.**

COMMENTOR: Southern California Gas Company (10/24/88)

RESPONSE: The revised Electrification Strategy Demand Forecast is based on SCAG's population growth estimate for the Basin.

4-14.16

COMMENT: **Additional information on the impacts of methanol combustion need to be provided. Formaldehyde, a toxic substance, forms as a result of combustion. These impacts need to be more adequately addressed.**

COMMENTOR: Blue Diamond (10/11/88)
Chevron (10/26/88)
Chevron Corporation (10/27/88)
Chevron USA, Inc. (9/28/88)
City of Santa Ana (10/27/88)
Highway Carriers Association (7/7/88)
League of Women Voters (10/26/88)
Marion Bone (10/22/88)
Sierra Club, L.A.Chapter (10/27/88)
Southern California Edison (10/27/88)
Unocal Corporation (10/27/88)

RESPONSE: The threshold limit value (TLV) for formaldehyde recommended by the American Conference of Governmental Industrial Hygienists (ACGIH, 1986) is a time-weighted-value of 1 ppm over an eight hour exposure. Generally, OSHA uses TLVs to determine the permissible exposure levels (PEL) to workers. Therefore, in December 1987, OSHA reduced the PEL from 2 to 1 ppm as a time weighted average over eight hours.

Greater use of methanol may result in increased formation of aldehydes, primarily formaldehyde. Formaldehyde can irritate the nose and throat and is considered an animal carcinogen. However, at this time, any possible chronic effect on humans has not been confirmed and is highly controversial (Southern California Gas Company, 1985, as cited in American Gas Association, 1986).

There have been a number of field test demonstrations of methanol fueling on stationary sources, demonstrating that, in most cases, formaldehyde emissions have been kept well below the 1 ppm PEL. For example, methanol was used to fuel a 3,250 kW Allison 501-KB gas turbine cogeneration plant located at the University of California at Davis. Without water injection and at full load, aldehyde emissions were relatively low, 0.02 ppm. However, as the load was reduced aldehyde emissions increased. The higher flow rate fuel nozzles may be partially responsible for the increase of combustible emissions due to less effective atomization at low flow rates. Water injection influenced aldehyde emissions only during low load tests, while emissions at full load were not affected and remained low, approximately 0.05 ppm.

In another field test demonstration, Southern California Edison (SCE) tested methanol fueling on their TPM FT4C-1DF gas generators at their Ellwood Energy Support Facility (Weir et al., 1981). The results indicated that the NO_2 emission level was 8-10 ppm during baseload operations, "with water injection having very little effect on emissions." Further, aldehyde emissions were "negligible," although they increased up to 1.8 ppm after 500 hours of operation. However, aldehyde emissions were higher with natural gas than with either of the liquid fuels. SCE concluded that, "it can be stated that methanol is a much cleaner fuel with respect to emissions than Jet A (distillate) fuel. The only practical limitations to its present use over conventional liquid fuels are its cost and availability. If low cost methanol supplies in adequate quantities are assured, its use would appear to be beneficial" (Weir et al., 1981).

Southern California Edison Company also tested methanol fueling on Boiler 4 at their Highgrove Generating Station (Weir et al., 1982) At full load, NO_x emissions were reduced 62 percent below the baseline level with natural gas and approximately 58 percent below fuel oil. NO_x was further reduced with water injection. Aldehyde emissions were less than 1 ppm, "with no significant differences observed between methanol, fuel oil and natural gas" (Weir et al, 1982).

The New Orleans Public Service Companies conducted a full scale test at the New Orleans Public Service Companies, Unit #3, on a 49 MW Babcock and Wilcox. The results indicated that spot analyses for aldehydes, organic acids, and hydrocarbons indicated negligible quantities (no data given) (Adamian and Perrine, 1987).

A full scale demonstration in Florida on a 26 MW gas turbine was conducted which "demonstrated stable operation, clean combustion and low NO_x emissions," (Adamian and Perrine, 1987). Aldehyde emissions for methanol firing were 1 ppm, "which is far lower than aldehyde emissions from natural gas firing but considerably higher than that of distillate fuel firing (Adamian and Perrine, 1987).

These field test demonstrations indicate that under most (but not necessarily all conditions) formaldehyde emissions (as measured by aldehyde emissions) can be maintained below the 1 ppm PEL. Therefore, by following proper operating procedures, for example, gas turbines using fuel nozzles with a lower flow rate with more effective atomization, and installing continuous monitoring devices, formaldehyde emissions can be maintained below levels that can affect worker health.

4-14-17

COMMENT: **The availability of sufficient methanol to implement the clean fuels strategy is questionable.**

COMMENTOR: City of Pomona (10/27/88)

RESPONSE: Methanol is produced primarily from natural gas, but can also be produced from coal and other organic feedstocks. Methanol production capacity from natural gas in the U.S. and worldwide currently exceeds demand by a large margin. The California Energy Commission is investigating the feasibility of using methanol as an alternative to oil-based fuels. CEC concluded that methanol is cleaner burning than all other fuels except hydrogen and can be economically competitive if sold to a mass market (SCAQMD, 1986)

Perhaps the major drawback to using methanol is that it is not economically competitive with fossil fuels. Another problem, which also adds to the cost, is the lack of market infrastructure for its transport and delivery. Currently methanol is not produced in California. All methanol used by California Energy Commission (CEC) programs is provided under contract by the Celanese Corporation from its Alberta, Canada plant (California Methanol Task Force, 1987). Methanol supplied by Celanese arrives in the Basin by rail tank car and is unloaded into a dedicated tank at the GATX Terminaling Corporation's San Pedro Chemical Terminal. The methanol is then delivered to customers by a dedicated truck fleet.

In the near-term methanol produced from natural gas could be competitive with fossil fuels (CCEEB, 1987). Potential sources of supply include Canada, Mexico, Malaysia, New Zealand, and South America, all of which have or are constructing methanol production facilities using unconventional natural gas supplies (gas that is not economically marketable via pipeline). At a District sponsored conference on methanol, several domestic oil companies indicated that, if the demand for methanol increases sufficiently, they would begin producing and supplying methanol to meet the increased demand. Methanol would also be economically competitive if the price of crude oil were to double.

In the long-term, methanol could be economically competitive with fossil fuels if it received the same tax advantages and government assistance as those currently granted to oil production. This unequal tax treatment undermines methanol's economic competitiveness (CCEEB, 1987).

If methanol use in the South Coast Air Basin (Basin) were to increase, rail tank car delivery could be augmented or replaced by vessel and barge deliveries. If the sales volume of methanol increased substantially, methanol might then be delivered by pipeline. Pipelines, because of their substantial economies of scale, can be a very inexpensive means of transporting large quantities long distances (D'Eliscu, 1987). In addition, methanol spills or leaks from a pipeline would have less of a detrimental environmental effect than would oil spills because methanol is rapidly dispersed and diluted, it quickly evaporates, and can be biologically degraded in both aquatic and terrestrial habitats (D'Eliscu, 1987). Long-term disruptions to fisheries, or bird and mammal populations are considered unlikely in all but the most localized, worst-case possibilities (D'Eliscu, 1987).

A common criticism of attempts to convert to clean fuels is that there is no market infrastructure supply network currently in place. The Methanol Task Force (1987) describes one "technically feasible means of expanding the [methanol] supply network" to meet an increasing demand. The expansion scenario targets a sales volume of approximately 250 million

gallons per year. This is considered the upper bound on what could be achieved by the year 2000, through an aggressive program of conversion to fuel methanol use. One possible scenario for the expansion of a methanol market infrastructure is as follows:

Current System

Volumes: 50,000 gal/yr of methanol.

Terminal Receipts: Rail tank cars or tank trucks.

Terminal: GATX chemicals terminal with a dedicated tank and truck rack.

Blending: Splash blended in the tank truck; truck makes a separate stop at a gasoline terminal. (if necessary)

Distribution: Trucked directly to the outlets.

Outlets: State leased space at service stations (5); privately owned fleet fuel stations (6)

Phase I Expansions (Maximum Use of Chemical Type Terminal)

Volumes: 500,000 to 50,000,000 gal/yr of methanol.

Terminal Receipts: Chemical vessel, chemical barge or rail tank cars.

Terminal: GATX or similar chemical terminal operation with dedicated lines from wharf to tank to trucks. Move to round-the-clock operation to meet increased volumes. Utilizes at least 15 percent of GATX chemical tankage and two of seven truck racks.

Blending: Splash blended in the tank truck; truck makes a separate stop at a gasoline terminal. (if necessary)

Distribution: Five dedicated trucks (tractor with two tank trailers) deliver directly to the outlets.

Outlets: 100 to 250 new outlets (at existing stations) -- represent two to five percent of all basin outlets.

Phase II Expansion (Development of a Dedicated Methanol Terminal)

Volumes: 50,000,000 t 250,000,000 gal/yr of methanol.

Terminal Receipts: Vessel, barge and rail car.

Terminal: Expansion or modification of an existing L.A. harbor petroleum products terminal. Dedicated internal floating roof tanks and truck loading rack (three bays). Wharf to terminal pipeline may or may not be dedicated.

Blending: Gasoline and methanol blended in-line during truck loading. (if necessary)

Distribution: Dedicated truck fleet, delivers directly to the outlets. No use of inland terminals or common carrier pipelines.

Outlets: Total of 500 outlets (methanol as a high volume product at ten percent of all basin outlets). (Source: Methanol Task force, pp. 13-14, 1987.)

4-14.18

COMMENT: **Propane should be considered an alternative fuel and its impacts analyzed.**

COMMENTOR: Western Liquid Gas Association (9/88)

RESPONSE: Propane is considered a clean fuel. The impacts of propane are described in Section 4-14 Energy.

4-14.19

COMMENT: **Use of CNG should be mentioned (see comments on Rule 1601).**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The impacts of natural gas, including CNG, are provided in Sections 4-14 and 4-15.

4-14.20

COMMENT: **Natural gas is clean burning and can be used directly at industrial facilities and for vehicles.**

COMMENTOR: San Diego Gas and Electric Co.
MESA (7/6/88)
American Gas Association (
Southern California Gas Company (8/16/88)
Southern California Gas Company (10/27/88)

RESPONSE: The impacts of natural gas use are addressed in Sections 4-14 and 4-15.

4-14.21

COMMENT: The impacts on the natural gas supply in the event of an energy disruption need to be addressed.

COMMENTOR: Southern California Gas Company (10/27/88)

RESPONSE: During an oil shortage, natural gas is likely to be utilized as a substitute fuel by those facilities capable of fuel switching. Allocation of natural gas on a priority basis, or by some other

rationing mechanism, could be used if demand were to exceed supply.

4-14.22

COMMENT: Use of digester gas as a specialized clean fuel should be evaluated.

COMMENTOR: County Sanitation Districts of Orange County (10/27/88)

RESPONSE: The cleaner burning characteristics of digester gas compared to natural gas should be verified on a BTU basis, as opposed to a volume basis. Since a cubic foot of digester gas contains substantial non-combustible CO2, burning it will produce less emissions than a cubic foot of natural gas. However, the relevant comparison between fuels for air quality purposes is the emissions produced per unit of energy content, i.e., BTU.

Even if it is determined that digester gas produces greater emissions than natural gas on a BTU basis, the continued and expanded use of digester gas as a fuel appears to have air quality advantages over the use of natural gas. This is because digester gas has no other economic use and would be flared, producing approximately the same emissions if another energy source were substituted for it. Moreover, substituting natural gas would approximately double the emissions, assuming the digester gas would be flared. If electric motors were substituted for digester gas-fueled internal combustion engines, emissions would be somewhere between equal and twice that of the emissions from flaring, depending on the fraction of electricity supply generated by in-Basin fossil fuel combustion.

The "clean fuel" characterization of digester gas must be qualified in another respect. Digester gas often contains volatile organic compounds (VOCs), some of which may be carcinogenic. Burning digester gas releases these VOCs, creating health risks. To reduce this health risk to acceptable levels, digester gas must be pre-treated to remove VOCs, before either flaring or use as a fuel. (District Rule 1401,

currently in the rulemaking stage, addresses this problem.) Pre-treatment of digester gas for use in internal combustion engines will involve significant costs.

If selective catalytic reduction (SCR) is used to reduce NOx emissions from digester gas-fueled internal combustion engines, redesign of the SCR system may be necessary to prevent fouling of the catalyst with impurities in the gas. Reduction in energy output may also occur due to such modifications. Both these effects will entail additional costs (Novy, 1987).

4-14.23

COMMENT: Little information is provided to document plan energy benefits.

COMMENTOR WOGA (10/27/88)

RESPONSE: Comment noted but is nonspecific. Please see responses to comments and revised energy section text.

4-14.24

COMMENT: The plan places the impacts of energy development on communities outside the Basin.

COMMENTOR: WOGA (10/27/88)

RESPONSE: See response to Comment 4-15.2.

4-14-25

COMMENT: Industrial processes are part of the baseload, therefore load management will be ineffective to mitigate increases in industrial demand.

COMMENTOR: WOGA (10/27/88)

RESPONSE: All industrial energy processes may not necessarily be part of the baseload. Load management may indeed be of some benefit in these cases.

SECTION 4-15 UTILITIES

Electricity

4-15.1

COMMENT : **The ability for utilities to provide adequate levels of service and build sufficient infrastructure need to be addressed.**

COMMENTOR: Public Utilities Commission (11/7/88)
Southern California Edison (10/27/88)

RESPONSE: The revised capacity and energy requirements for the electrification strategy are lower than previously indicated. The revised estimates are presented in Sections 4-14 and Section 4-15.

4-15.2

COMMENT: **The AQMP electrification strategy will require about 46,060 MW of additional generating capacity by the year 2007. The significant secondary impacts of this additional capacity are not adequately addressed in the DEIR.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Revised estimates of 4,400 MW (daytime) and 9,200 MW (nighttime) are presented in Section 4-14. These capacity needs can be met by solar power, fuel cells, conservation, repowering, and hydropower.

4-15.3

COMMENT: Table 4-15.2 is not shown in the DEIR.

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: The revised electricity supply table containing this information is located in Section 4-15 on the EIR.

4-15.4

COMMENT: **Methanol cost economics have not been investigated in detail.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The price range of a gallon of methanol has been revised to 35-80 cents. The cost of phasing out fuel oil includes $42 million for fuel storage and other one-time costs of conversion.

SECTION 4-17 HUMAN HEALTH

4-17.1

COMMENT: **The impacts of poor air quality on public health need to be quantified. Future public health benefits resulting from implementing the AQMP should also be discussed.**

COMMENTOR: City of Clarement (10/27/88)
ARCO Products Company
CEEB (10/25/88)
SCE

RESPONSE: The federal and state ambient air quality standards are set at levels that will protect public health from the adverse impacts of the criteria pollutants, (i.e., ozone, nitrogen dioxide, carbon

monoxide, sulfur dioxide, lead, and PM_{10}. The specific level for each criteria pollutant is established to provide a margin of safety to protect the health of sensitive individuals such as children or the elderly. Ambient air quality standards are based upon experimental laboratory studies and on public health studies.

The District currently complies with the National Ambient Air Quality Standards for two criteria pollutants, sulfur dioxide and lead. With current controls, the District is expected to remain in compliance with these two pollutants (SCAQMD, 1987a). Therefore, these pollutants will not be discussed further. The remaining four criteria pollutants are discussed below.

Ozone

Ozone is a powerful oxidizing agent. It can react with and destroy many biologically important molecules. Laboratory experiments using animal models to demonstrate the effects of short-term exposure to ozone reveal severe respiratory irritation, resulting in shallow and rapid breathing. Analysis reveals that experimental animals are unable to expand their lungs fully, and/or their airways have increased flow resistance.

After exposure to the experimental condition (i.e., exposure to ozone) lab animals are often sacrificed and the target organs (respiratory tract) are examined. Short-term ozone exposure to several different species has shown respiratory tissue damage. Tissues typically become inflamed and swollen, and fluid may leak into the air passages from the blood. Cells specialized for defense and repair of injury may accumulate in the affected area. These same cells may release substances that contribute to developing pulmonary fibrosis (lung scar tissue). Some lab experiments have demonstrated that impaired defense mechanisms resulting from short-term exposure to ozone increases vulnerability to other diseases.

Generally, short-term lab exposures occur at ozone concentrations of 0.5 ppm or more. However, some lab studies have demonstrated tissue damage at concentrations as low as

0.1 - 0.2 ppm. These results verify the fact that tissue damage from ozone can occur at exposure levels that occur commonly during the summer in many of the inland areas of the Basin.

In addition to laboratory animal studies of the acute effects of short-term exposure to ozone, there have been a number of clinical studies conducted with healthy adult human volunteers exposed to a wide range of ozone exposures and activity levels. These studies demonstrate that, if the dose is sufficient, volunteers can experience a lower-respiratory irritant response, typically including coughing and pains in the chest as well as a decline in performance on lung function tests.

There is indirect evidence that the irritant responses observed during clinical studies reflect damaging inflammatory responses in lung tissues similar to those observed in lab animal studies. For example, investigations have shown that, after exposure to ozone, airways respond with increased amounts of constricting agents such as acetylcholine or histimine. This may reflect tissue damage at the nerve endings which respond to the constricting agents.

Currently, it is unclear whether short-term effects of ozone exposure, if they occur repeatedly, lead to permanent lung damage and significant disability. Some, though not all, lung function testing has suggested a faster-than-usual decline with age in the more polluted areas of the Basin. If this effect is real, ozone is a likely candidate to be the causal agent.

According to data presented by Scheible (1988) air quality and emissions trend data available today indicate that reducing atmospheric NO_x levels leads to reductions in ozone over the majority of the Basin, especially in the those areas where ozone levels are the highest. The greatest ozone reductions occur, however, when both NO_x and ROG controls are being implemented. Scheible (1988) indicated that ROG-only controls were relatively ineffective in reducing ozone.

Therefore, as part of the overall District strategy to attain the federal ozone standard within the next 20 years, all Tier One NO_x emissions reductions must occur in conjunction with VOC

emissions reductions (SCAQMD, 1987a). To provide the best interim ozone reductions, NO_x emissions reduction rules and VOC emissions reduction rules should be timed so that they are implemented concurrently to the greatest extent possible. By implementing the Tier One, Two, and Three controls, as described in the AQMP the Basin may attain, as well as maintain the National Ambient air quality standard for ozone within the next 20 years.

Nitrogen Dioxide (NO_2)

NO_2, like ozone, is an oxidizing agent, but it is not as strong as ozone. As stated earlier, the federal ambient air quality standards are based on research that demonstrates human health impacts resulting from NO_2 exposure. For example, there is evidence (Sherwin, 1988) that ambient levels of NO_2 can result in: high levels of subclinical lung diseases such as loss of lung reserves (healthy lung tissue); lesions; increase in type 2 cells; facilitation of cancer metastasis to the lungs; and alteration of T- lymphocyte and natural killer cell subpopulations, thus reducing the body's ability to defend itself against disease.

The primary goal of the short-term control measures to reduce NO_x emissions in the Basin is to attain the federal NO_2 standard to protect public health. Although there is no clear linear relationship between NO_x emissions reductions and reductions in ambient NO_2 concentrations, NO_x emissions reductions do lead to reductions in NO_2 levels. According to Scheible (1988), between the years 1978 and 1983, NO_x emissions reductions in the Basin totaled approximately 135 tons per day. As can be seen in Table 1 below, this period coincides with a period of steady decline in NO_2 levels. Ultimately, NO_x emissions reduction rules and VOC emissions reduction rules are projected to help ameliorate ozone air quality problems.

TABLE 1

Nitrogen Dioxide in the South Coast Air Basin - Summary Statistics: Trends in 6-Station Composite Average, 1978 - 1983 (Burbank, Long Beach, Lennox, West L.A., Downtown, L.A., Pasadena)

	1978	1979	1980	1981	1982	1983
6-Station Mean of Annual Average All hours[1]	6.52	6.15	5.85	6.04	5.56	5.05
3-Year Running Mean of Above[1]	6.53	6.17	6.01	5.82	5.55	5.21
6-Station Total of Days State Standard Was Exceeded (1 Hour Average 25 pphm)	90	78	78	62	25	27
3-Year Running Mean of Above	110	82	73	55	38	21

PM_{10}

The Environmental Protection Agency (EPA) until recently regulated total suspended particulate (TSP), but now regulates PM_{10}, particulate matter with an aerodynamic diameter less than 10 micrometers (um). This reason for this change is that EPA assumes that particles smaller than 10 um present a greater health risk because they are more readily inhaled and can travel deeper into the respiratory tract. In addition, particles greater than 10 um are frequently naturally formed.

Although chemical composition of a particle can influence its affect on health, the PM_{10} standard does not address chemical composition.

In 1987, the annual average PM_{10} concentrations in the Basin were approximately 80 percent above the federal standard (SCAQMD and SCAG, 1988). Because PM_{10} levels are so high, the Basin has been classified by the EPA as a PM_{10} Group I area, which is a designation for areas with a greater than 95 percent probability of not complying with the federal PM_{10} standards.

NO_x emissions contribute to the formation of aerosol nitrates and nitric acid, which are important components of PM_{10}. Modeling results on the source apportionment of PM_{10} concentrations in 1986 indicate that NO_x emissions contribute significantly to PM_{10} levels. In general, the average nitrate component of the annual average is approximately 22 percent, with a range of between 15 and 33 percent (Liu, 1988). The source apportionment for the maximum 24-hour average PM_{10} levels indicate that nitrate species make up 40 to 58 percent of the total PM_{10} concentration (Liu, 1988). According to Lurmann (1988), 1985 and 1986 data of all 24 hour PM_{10} exceedances reveal that, on the days with the highest levels of PM_{10}, the nitrate and nitrate-related species concentrations alone were higher than the 150 ug/m^3 24 hour standard.

PM_{10} has negative health impacts because it is able to penetrate deeply into the respiratory system. In some cases, the particulates may cause loss of lung function by damaging the alveoli of the lungs. Such losses in respiratory function may predispose some individuals to increased susceptibility to other diseases. These particles may also carry carcinogens and other toxic compounds that can adhere to the particle surfaces, also causing injury to the lungs.

Recent evidence (Lurmann, 1988) indicates that there is a correlation between NO_x controls and nitric acid and aerosol nitrate species reductions. The correlation is not 1:1, but is closer to 1:0.8. For example, modeling results for the Basin derived from the Russell et al. version of the Carnegie-

Mellon/Cal Tech Airshed Model indicates that NO_x emissions reductions of approximately 60 percent would reduce nitric acid levels by as much as 50 percent and aerosol nitrates by as much as 40 percent (Lurmann, 1988).

By adopting an aggressive PM_{10} control strategy that focuses on primary emissions, i.e. fugitive dust, heavy duty vehicle emissions etc., the Basin may eventually achieve compliance with the federal annual standard This is not the case, however, with the state 24-hour standard. District data indicates that on high PM_{10} exceedance days, up to 58 percent of the PM_{10} concentration is composed of nitrate-related species. This means that the nitrate component of PM_{10} alone exceeds the 24-hour standard of 150 ug/m^3. Therefore, the District must adopt NO_x emissions reduction rules in order to achieve the 24-hour PM_{10} standard (Lurmann, 1988).

Carbon Monoxide (CO)

CO is a colorless odorless gas produced by incomplete combustion of carbon-containing fuels. Most CO released into the atmosphere each year comes from the incomplete combustion of gasoline in cars. In 1985, the federal CO standard was exceeded in approximately one-quarter of the Basin (SCAQMD, 1986). In addition, CO levels are approximately twice the federal ambient air quality standard. District staff estimate that the CO ambient air quality standards may be attained within 15 to 20 years if CO emissions reduction strategies are energetically pursued.

The major physiological importance of CO is its ability to compete with oxygen for binding sites on the hemoglobin molecule in the blood cell, thus producing an anoxic or asphyxial hypoxia. Other symptoms of CO poisoning included headaches, weakness, nausea, and dizziness, and fainting becomes a possibility. CO is a stronger ligand for hemoglobin than is oxygen, and, therefore, has a stronger binding affinity. Indeed, CO binds with hemoglobin more than 200 hundred times more tightly than oxygen.

In normal ambient air (oxygen content is approximately 21 percent), 50 percent of a person's hemoglobin is inactivated by CO when the air concentration of CO approaches 0.1 percent. CO not only displaces oxygen from the hemoglobin, but it affects certain characteristics of the bound oxygen. When both CO and oxygen are bound to the same hemoglobin molecule, the oxygen is bound tighter because of the drop in the partial pressure of the oxygen. This results in even less oxygen being released to the tissues.

Summary

Although the major health effects of the criteria pollutants are well established, there are a number of questions that remain such as: do short-term irritant responses observable in clinical studies reflect actual damage to respiratory tissues; if so, do these damages persist; if damage does persist, does it measurably increase the risk of eventual disability or premature death, and; what environmental factor(s) increase the rate of illness or premature death associated with particular criteria pollutants.

These unanswered questions illustrate difficult policy questions facing the District: which pollutants should be controlled most stringently to protect public health and what is/are the best strategy/ies to achieve compliance with established ambient air quality standards. Any current policy decision, which is ultimately based on incomplete information, might not be the best or most efficient strategy for achieving the stated goals.

The South Coast Air Quality Management District is the agency responsible for developing and enforcing air pollution reduction rules and regulations in the Basin. The District is proposing to reduce criteria air pollutant emissions to all federal air quality standards by the year 2007 by implementing a three tier approach as stated in the 1988 Revision to the AIR Quality Management Plan (SCAQMD and SCAG, 1988). Staff have concluded, on the basis of current (and necessarily incomplete) evidence, that the strategies outlined in the AQMP will produce the greatest benefits to public health with

the least disruption. Other strategies, such as an ROG only approach will help reduce ozone concentrations in the Basin, but it does very little to reduce PM_{10} concentrations. In addition, this approach may reduce the possibility of attaining and/or maintaining the NO_2 air quality standards, especially in light of substantial population growth projected for the Basin (the expected annual regional growth for the next decade is projected to be 2.1 percent).

4-17.2

COMMENT: **Assess health impacts associated with reformulation coatings and solvents using exempts compounds.**

COMMENTOR: Source Reduction Research Institute (SRRI, 10/04/88).

RESPONSE: The impacts associated with the use of exempt compounds in solvent and coatings reformulation was discussed in Chapter 4 of the EIR: "Reformulation of Solvents and Coatings;" page 4-9-7.

The following compounds are the most frequently exempted compounds from the District Rules; 1,1,1-trichloroethane, methylene chloride, trifluoromethane (FC-23), trichlorotrifluoroethane (CFC-113), dichlorodifluoromethane (CFC-12), trichlorofluoromethane (CFC-11), chlorodifluoromethane (CFC-22), dichlorotetrafluoroethane (CFC-114), and chloropentafluoroethane (CFC-115). The increased use of these compounds could intensify the health impacts associated with them. Coatings and solvents reformulation with these compounds would result in the generation of wastes and emissions which could cause air, soil and water contamination. Such contamination would directly affect human health through the air we breathe or through indirect sources such as drinking water and foods.

The actual health effect of these compounds cannot at this time be determined within the scope of this report, but in the review of specific implementation measures, which could

involve one or any number of these compounds, attempts will be made to assess the associated health impacts.

On the other hand, and recognizable health effects in populations are generally divided into two categories: mortality and morbidity. Mortality refers to the number of deaths per unit of the population per unit time, and the ages at death. Morbidity refers to nonfatal cases of reportable disease.

Massive overexposures to toxic air emissions can cause significant amounts of death to occur within a short time after the exposure to the hazard. Exposure to toxic air contaminant could also result in residual disease and/or dysfunction. In any case, casual relationships are well-defined, and it may be possible to develop quantitative relationship between dose and subsequent response.

Based on the known facts about industrial operations every where, and the South Coast Air Basin in particularly, overexposures of the public to toxic air contaminants, which have resulted in death had occurred too infrequent and limited, in terms of length and scope, due to regulatory and operation requirements. The level of people exposed to low-level toxic contaminants, on the contrary, would be high than those exposed at levels high enough to produce significant health effects. Furthermore, the increases in the incidence of diseases from low-level, long-term exposure to toxic hazards, invariably occur among a very small segment of the population. It is not always an easy task to make any determination of low-level, long-term health effects resulting from any toxic contaminant. Quite often this would require extensive epidemological study, which involves thousands of person-years of exposure. In addition, low-level exposures tend to play contributory, rather than primary, roles in the increase of disease incidences. This factor contribute to the problems associated with early detection of cause and effect of low-level, long-term exposure to toxic contaminants.

Effects of Toxic Contaminants on Mortality: Technological advancements have enabled good reporting of mortality and

age at death, but a lot of advancement has not yet been made in identifying the exact cause of the majority of deaths in our society today. Therefore, the effects of the use of exempt compounds on human health and any related death cannot be easily quantified. Any effort in this direction would be done on case-by-case basis, and even then, the result mighty be inconclusive.

Effects of Toxic Contaminants on Morbidity: There is greater difficulty in identifying other health effects criteria. So many factors contribute to health problems, and isolation of a particular contributor requires extensive studies. Again, it beyond the scope of this report to address the specific effects of health impacts of the potential toxic contaminants listed above.

Mitigation of Impacts

Whereas the health effects associated with the hazards of exempts compounds cannot be adequately assessed in this report, there have been serious considerations made, and measures approved, which are intended to mitigate their impacts of these compounds. Please refer to the mitigation measures in the EIR on page, 4-9-8.

Increase in Solid Waste from Fluid Cracking Units

Fluid catalytic cracking units (FCCU), is used in the refinery process unit to convert heavy gas oil into predominantly gasoline range materials and other products. The use of FCCU will increase the amount of sulfur and carbon (coke) generation. The cracking process produces carbon which remains on the catalyst particle and rapidly lowers its activity. To maintain the catalyst activity at a useful level, the catalyst is regenerated by burning the coke with air.

Heavy gas oil containing sulfur is fed into the FCCU, some of the sulfur remain in the gasoline range materials and other products after processing. At the Texaco Refinery in Wilimington, California, a portion of the gasoline range and

other products are processed through sulfur removal processes and facilities downstream of the FCCU, (Texaco 1988). The amount of sulfur in the FCCU feed and, the subsequent sulfur content of the FCCU products, can be reduced by hydrotreating the feedstock prior to the FCCU.

The net effects of the above process are the generation of coke and sulfur. The coke would result in waste generation and particulate matter problems, whereas sulfur would result in the production of elemental sulfur. Sulfur is further processed by a hydrotreater unit, which results in the production of hydrogen sulfide (H_2S). This process complies with the District's Rule 1105 (Sulfur Emissions From FCCUs), yet some concerns exists in association with the resultant H_2S. Further processing involves the recovery of sulfur as it fed through a sulfur recovery unit (SRU), which reduces the sulfur-content of hydrogen sulfide by as much a 98% in some facilities. A Claus sulfur unit followed by Stretford absorption unit will reduce the hydrogen sulfide content of the exit gases to less than 5 ppm.

Impacts of FCCU By-Products

The health impacted associated with the increased production of coke and hydrogen sulfide or elemental sulfur, could not result in significant adverse impacts to human health.

Coke: Health impacts due to the generation of coke, would result from increased amounts of particulates. The emission factor for coke used by the District (SCAQMD) is 200 lbs of particulate for 1,000 tons of coke produced. It is difficult to quantify the total amount of particulates which will be produced as a result of the AQMP because of the limited data available to adequately determine the volume of petroleum to be processed through the cause of the Plan. However, it is expected that with the increased need to produce low sulfur-content gasoline, there would be corresponding increase in the amount of coke produced.

Health impacts attributable to coke production in the form of particulate matter, would have relatively localized effects

upon worker, and may not adversely affect surrounding communities. Over-exposure to coke particulates could cause relative risk of lung, trachea, and bronchus cancer mortality.

H_2S: The relative effects of H_2S to human depends on location and the extent of absorption of inhaled gases and vapors. For the most part, sulfur is highly soluble in water, and therefore, are largely absorbed in the upper respiratory tract, while the less soluble gases reach the lower airways. In the event the overexposure to H_2S should occur, the effect would be similar to coke since both are particulate contaminants. Under normal condition, exposure to H_2S could not result in significant adverse health impacts. Gases dissolved in the tracheobronchial tree may be cleared with the mucus. However, sensitive receptors could suffer more adverse health impacts than younger and healthy individuals.

Given the high percentage (over 99%) rate recovery of the inlet sulfur from heavy oil processing, there could not be a significant health impacts resulting from increased sulfur production. Likewise, coke would not cause a significant health risk because, most of the coke produced would be stored, disposed or shipped to end user in compliance with existing regulations.

Mitigation

The process of sulfur removal itself is one means of controlling sulfur emissions. Hydrogen sulfide is converted into elemental sulfur through the sulfur removal unit (SRU). Exhaust (tail) gases leaving the SRU is further cleaned in the sulften tail gas cleanup system. In this process the sulften tail gas is passed through a catalyst bed which converts sulfur dioxide, elemental sulfur, water, and hydrogen gas to H_2S. The entire processes results in less than 10 ppm limitation on H_2S emissions which is then discharged into the atmosphere.

To ensure protection of public health, equipment designed specification and standards must be maintained. Operator must comply with all related Districts Rules and Regulations.

In addition, all other regulatory requirements of various related agencies must be complied with.

4-17-.3

COMMENT: **Formaldehyde is listed in Table 4-17.1 as "potentially adverse.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Comment noted. Formaldehyde can cause health impacts. "Potentially adverse" refers to potential for emissions increases.

SECTION 4-18 ECONOMIC/COST

4-18.1

COMMENT: **The $11 billion in health costs will be difficult to substantiate, especially when the health effects of unemployment are factored in.**

COMMENTOR: L. A. Chamber of Commerce (9-28-88)

RESPONSE: The $11 billion in health costs have been revised to include costs of mortality, emergency room visits, emergency hospital admissions, sick days, motor-restricted activity days, asthma symptom aggravation days, and respiratory-restricted activity days. These costs result from noncompliance with the federal air quality standards for ozone and particulates. Health effects of unemployment are discussed in the FEIR.

4-18.2

COMMENT: **Public support for the measures will be undermined if additional expenditures and effort do not translate into proportionate health improvements.**

COMMENTOR: The Irvine Co. (8-19-88)

RESPONSE: In the draft AQMP and EIR, the District specified that there would be a $9.6 billion annual benefit from compliance with air quality standards.

4-18.3

COMMENT: **A more adequate statement of the consequences (health, economic, etc.) of air pollution and of the costs and impacts of the proposed measures should be prepared.**

COMMENTOR: County of Los Angeles, Chief Administrative Office (8-12-88), WOGA (10/27/88)

RESPONSE: The environmental consequences resulting from implementation of the AQMP are discussed in the FEIR.

4-18.4

COMMENT: **Provide equations and data sources for calculating dollar values of air quality benefits in the EIR.**

COMMENTOR: NERA (10-20-88)

RESPONSE: Equations used in calculating air quality benefits are from pp. 5-69 - 5-71, 6-14, 8-29, and 7-50 of the ARB report, The Benefits of Air Pollution Control in California, 1986. Other data sources include Agricultural Crop Report, the District Air Quality Data Base, California Statistical Abstract, and Economic Report of the President.

4-18.5

COMMENT: **There is a need to address the possibility that the plan will create a non-competitive business environment in the air basin, affecting business decisions to locate or remain in the air basin. The $2.00 benefit appears idealistic and may be overstated due to unknown health detriment caused by the**

control measures themselves, e.g., by formaldehyde, a by-product of methanol combustion.

COMMENTOR: Board of Supervisors, County of Los Angeles (10-21-88) and Chief Administrative Officer, County of Los Angeles (10-26-88)

RESPONSE: Businesses have to make their own decisions to adjust to the regulatory environment in order to stay competitive. The regulatory environment is only one of the determining factors in business relocation. The $2 benefit of clean air was the damage resulting from noncompliance with ozone and particulates standards.

4-18.6

COMMENT: **The benefit is based on a study that shows annual benefits ranging from as high as $4 per capita to as low as 38 cents per person. Thus, there is considerable question as to the accuracy of benefit number.**

COMMENTOR: Southern California Edison (10-27-88)

RESPONSE: The benefit estimates update the calculations in the ARB report, *The Benefits of Air Pollution Control in California*, by comparing the 1987 air quality data in the Basin with the federal standards for ozone and particulates.

4-18.7

COMMENT: **The methodologies for evaluation of measures, impacts, benefits and disbenefits needed to be adequately documented and presented. A breakdown of $2 per day benefit is not provided nor does it explain how this figure was derived.**

COMMENTOR: Coalition for Clean Air (10-27-88)
ARCO (10-26-88 and TR10-27-88)
City of Garden Grove (10-13-88)
WOGA (10-27-88)

CCEEB (10-27-88)
Group Against Smog and Pollution (10-27-88)
WOGA (10/27/88)

RESPONSE: The discounted cash flow method is used to evaluate cost effectiveness of each control measure. See Appendix IV-D for detailed information. Control costs by the two-digit SIC industries were derived by distributing the cost of each control measure among directly-impacted two-digit SIC code industries by their 1985 emissions.

The air quality benefit was derived by comparing the 1987 air quality data in the Basin to the federal standards for ozone and particulates. Benefit categories included health, materials, forest, and agriculture. Dose-RESPONSE equations from the 1986 ARB report, *The Benefits of Air Pollution Control in California*, were used.

4-18.8

COMMENT: **The Plan and EIR are overly optimistic in benefits and underpredict disbenefits. The $2 benefit from implementation of all measures is compared to the cost of $.65 from implementation of only some of the measures in Tier I.**

COMMENTOR: ARCO (10-26-88)
Southern California Gas Co (October 1988)
Valley Industry and commerce (10-26-88)
City of Garden Grove (10-13-88)
Southern California Edison (10-27-88)
CCEEB (10-27-88)
Mobil Oil Co. (10-27-88)
McDonnell Douglas (10-26-88)

RESPONSE: Just as the cost estimates did not reflect all costs, the air quality benefit did not cover all areas and all pollutants. The benefit included damages to health, materials, forest, and agriculture as a result of noncompliance with the federal standards for ozone and particulates. The indirect health costs, such as pain and discomfort, were not accounted for and could be 20-50%

of the total health damage. Agricultural damages were those to dry beans, cotton, potatoes, and grapes only.

4-18.9

Comments: **The $9.6 billion per year air quality damage cost is implausible because it requires one to assume (1) all control measures will be implemented, (2) measures do not interact with one another, and (3) the draft AQMP reduces air pollution damages to zero in the Basin. None of these three propositions is supported in the draft EIR.**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: The benefit estimates were calculated independently of all these three assumptions. They were computed by comparing the 1987 air quality data in the Basin with the federal standards for ozone and particulates. Scenarios outlined in *The Benefits of Air Pollution Control in California* did not reflect the current situation. Estimates taken from these scenarios must be explained cautiously.

4-18.10

COMMENT: **The Plan and the EIR state that the Plan's benefits exceed its costs. We regretfully question the underlying data substantiating that particular assumption.**

COMMENTOR: L.A. Chamber of Commerce (TR 10-24-88), WOGA (10/27/88)

RESPONSE: The costs and benefits that the District has been able to calculate demonstrate that benefits exceed costs.

4-18.11

COMMENT: **The District should conduct full evaluations of the proposed control measures in Tier I and of how the plan will impact the region's capital funds to provide jobs, income, and public services in the Basin.**

COMMENTOR: L. A. Chamber of Commerce (8-15-88)

RESPONSE: The District has calculated control costs for majority of Tier I control measures. In the FEIR, impacted industries of control measures are identified.

The CEQA requires that socioeconomic impacts be given to the extent they induce environmental impacts.

4-18.12

COMMENT: **The District should examine the number of industries lost from the Basin due to increased regulation and cost, and whether the industries within the Basin can remain competitive in a world economy with the additional expenses proposed by the plan.**

COMMENTOR: City of Buena Park (9-6-88)
WOGA (10/27/88)

County of Los Angeles, Chief Administrative Office (8-12-88)

RESPONSE: Although implementation of AQMP may initially present financial difficulties to some impacted facilities, in the long run, these facilities might make adjustments to increase their competitiveness such as they have done in light of foreign competition and technological advance. On the other hand, investments on control equipment will benefit the air pollution control industry. As a result, there may be changes in the industry mix in the Basin. The competitiveness of a subject company will depend on each individual case. These impacts will be analyzed in the EIR to the extent that they induce environmental impacts.

4-18.13

COMMENT: **Some businesses may be forced to relocate and over an unspecified period of time.**

COMMENTOR: City of Los Angeles (8-29-88)
WOGA (10/27/88)
City of Vernon (8-30-88)
Valley Industry and commerce (10-26-88)
Van Nuys Area Chamber of Commerce (10-14-88)

RESPONSE: Relocation of businesses in light of adoption of proposed control measures would depend on the extent to which impacted businesses absorb control costs. However, the magnitude of regulation is not the sole factor in the decision of business relocation. In the EIR, these impacts have been identified.

4-18.14

COMMENT: **The city of Temple City opposes any plan that imposes regulatory measures which create economic hardships that result in business closures and reduction of employment opportunities.**

COMMENTOR: Temple City (9-23-88)

RESPONSE: Implementation of AQMP may result in financial difficulties to some impacted sources in the beginning. On the other hand, purchases of control equipment create more opportunities for the air pollution control industry. The net impact would be difficult to estimate.

4-18.15

COMMENT: **AQMP will cost jobs. Any control measures that would drive both large and small businesses and industries out of the Basin must be examined with the gravest concern.**

COMMENTOR: L. A. Chamber of Commerce (9-28-88)

RESPONSE: These impacts are analyzed in the FEIR to the extent that they induce environmental impacts.

4-18.16

COMMENT: **At present, the Draft AQMP does not address the cumulative impacts of control measures on a single source.**

COMMENTOR: The Irvine Co. (8-19-88)
City of Santa Ana (10-27-88)

RESPONSE: Cumulative impacts would be addressed in the EIR to the extent that they induce environmental impacts.

4-18.17

COMMENT: **The AQMP should fully evaluate and discuss who will bear the cost for implementing Tier I in order to determine if some of the cost can be reduced or mitigated for business, lower income groups, and others.**

COMMENTOR: Southern Calif. Edison Co. (8-15-88)

RESPONSE: In the FEIR, impacted industries are identified by groups of control measures. Mitigation measures are also discussed.

4-18.18

COMMENT: **What is the magnitude and incidence of costs of the proposed control measures, particularly on small businesses. How does the AQMP relate to overall social/economic/environmental priorities of the region?**

COMMENTOR: City of Long Beach (8-12-88)

RESPONSE: In the FEIR, the incidence of control costs on various sizes of firms is identified. The socio-economic impacts of implementing AQMP are discussed to the extent these impacts induce environmental impacts.

4-18.19

COMMENT: **The publications do not contain social and economic dislocations, the cost of the proposed policies to governmental organizations, businesses and citizens, changes in social structure that would occur as a result of the policies.**

COMMENTOR: City of La Habra (8-9-88)

RESPONSE: The cost estimates have been identified for control measures with known technological applications. The FEIR contains discussions of the impact of control measures on industry and of other socio-economic impacts to the extent that they induce environmental consequences.

4-18.20

COMMENT: **(a) Most manufacturing processes will be forced out of the basin from the controls being promoted. This translates into an uncertain economic future for our higher-paid blue-collar workers. (b) The extent of the effects of AQMP may be unpredictable in terms of economic dislocation and potential distortions in the market place. (c) The eight million dollars**

per day price tag placed on this plan is most certainly understated.

COMMENTOR: City of Fullerton (9-28-88)

RESPONSE: (a) Manufacturing processes which choose not to comply with the District controls and hence relocate in other basins would diminish their share in the Basin's economy. (b) These impacts are analyzed qualitatively in the FEIR. (c) The $8 million daily control costs were for the Tier I control measures with cost information.

4-18.21

COMMENT: **Who will pay the cost of AQMP?**

COMMENTOR: City of Corona (8-8-88)

RESPONSE: Industries and the public who are identified to be subject to control measures will be directly impacted by these control measures. Depending on the public's RESPONSE to price changes, some industries will be able to pass control costs to their consumers more than others.

4-18.22

COMMENT: **Better data pertaining to questions on lifestyles changes, and direct and indirect costs for implementation of the plan are needed. Indirect cost impacts, such as lost jobs or income due to implementation of the plan, are not included.**

COMMENTOR: McDonnell Douglas (10-26-88)

RESPONSE: Direct costs of implementing some of Tier I control measures have been presented in Appendix IV-A. Indirect impacts of lost jobs or income are discussed to the extent they induce environmental impacts in the FEIR.

4-18.23

COMMENT: **The DEIR has limited analysis on economic and energy impacts of a mandated shift to alternative fuels.**

COMMENTOR: Mobil Oil Co. (10-27-88)

RESPONSE: Impacts of electrification are discussed in Appendix IV-B: Energy Future. Impacts of using other alternative fuels are covered in the FEIR.

4-18.24

COMMENT: **Nowhere in DEIR, the plan or the background documents, however, are the massive impacts that Basin-wide electric conversion will have on the economy addressed (p.4-18-1). The impact of changes in fuel prices does not extend to industrial users in the section of Petroleum and Natural Gas Production and Distribution (p.4-18-5).**

COMMENTOR: Western Oil and Gas (10-27-88)

RESPONSE: The economic impacts of electricity conversion are addressed in Appendix IV-B. The impact of higher fuel prices on commercial and industrial users are included in the FEIR.

4-18.25

COMMENT: **The section on Gas Turbine Power Generation in the DEIR does not address impacts beyond newsprint recyclers (p.4-18-6).**

COMMENTOR: Western Oil and Gas (10-27-88)

RESPONSE: Paper recyclers are identified here because these establishments would be highly impacted by the control measure.

4-18.26

COMMENT: **If the impact of each of the control measures is accurately analyzed, the analysis will show an impact that is likely to drive a large portion of economic activity out of the Basin, severely depressing the economy (p.4-18-17).**

COMMENTOR: Western Oil and Gas (10-27-88)

RESPONSE: The possibility that some businesses may relocate out of the Basin has been stated in the DEIR.

4-18.27

COMMENT: **Is the goal of attaining clean air to be achieved at the expense of small service industries, or vulnerable local economies?**

COMMENTOR: City of Santa Ana (10-27-88)

RESPONSE: In the FEIR, impacts on industries of various employment sizes are discussed. Other economic impacts to the extent that they induce environmental impacts are also discussed.

4-18.28

COMMENT: **The IECOC urges that AQMD prepare a cost-benefit analysis of the various measures so that businesses can relate to them.**

COMMENTOR: IECOC (10-27-88)

RESPONSE: Cost estimates have been identified for control measures with known technological applications. The readily identifiable benefits are improvement in air quality and the increased demand for the products in the air pollution industry. See the FEIR for other indirect costs and benefits.

4-18.29

COMMENT: **The Plan does not identify any cost associated with implementing the measures listed. There may be cost impacts on smaller firms and businesses.**

COMMENTOR: City of Pomona (10-27-88)

RESPONSE: Cost estimates have been identified for control measures with known technological applications. The FEIR will discuss the impacts of control measures on various sizes of firms.

4-18.30

COMMENT: **The EIR does not identify impacts on lower income groups.**

COMMENTOR: Southern California Edison (10-27-88)
County of Los Angeles, Chief Administrative Office (8-12-88)
City of Long Beach (8-12-88)

RESPONSE: The DEIR has addressed these impacts qualitatively.

4-18.31

COMMENT: **Secondary impacts of methanol include the development of rights-of-way for pipelines, significant new air emissions and vehicle trips from the delivery of fuels by truck, additional ship operations and the impacts of over 40 unit trains per day transiting the basin if just the fuel required for power plants were delivered by rail.**

COMMENTOR: Southern California Edison (10-27-88)

RESPONSE: The secondary impacts of methanol are discussed in the FEIR.

4-18.32

COMMENT: **Socioeconomic impacts are not adequately evaluated or documented and must be addressed before a final plan can be implemented.**

COMMENTOR: ARCO (10-26-88)
Southern California Gas Co (8-16-88 and October 1988)
Valley Industry and commerce (10-26-88)
City of Garden Grove (10-13-88)
Texaco Refining & Marketing (10-27-88)
Southern California Edison (10-27-88)
County of Los Angeles, Chief Administrative Office (8-12-88)
City of Vernon (8-30-88)
Chevron (TR10-27-88 and TR10-12-88)
WOGA (10-27-88)
UNOCAL (6-18-87)
City of Los Angeles (8-29-88)
L. A. Chamber of Commerce (9-28-88)
City of Buena Park (9-6-88)
City of Anaheim (8-22-88)
City of Corona (8-8-88)
CCEEB (10-27-88)
Mobil Oil Co. (10-27-88)

RESPONSE: CEQA requires that socioeconomic impacts be given to the extent they induce environmental impacts.

4-18.33

COMMENT: **The EIR notes possible growth in the pollution control industry, but surely the pollution control equipment could not be manufactured here for the same reasons other manufacturing fades.**

COMMENTOR: ARCO (10-26-88)
WOGA (10/27/88)

RESPONSE: If the pollution control industry is subject to the control measures that the District has identified, it will be treated the same as other industries subject to these control measures.

4-18.34

COMMENT: **Socal gas projects that the local economy would lose $2.5 billion annually by the year 2007 due to these controls. This translates into the loss of 49,500 jobs.**

COMMENTOR: Southern California Gas Co. (October 1988)

RESPONSE: SoCal Gas needs to provide enough information for the District to examine and evaluate these estimates.

4-18.35

COMMENT: **The implementation of Tiers II and III is likely to cost more than $.65 per capita per day. Can we really afford this?**

COMMENTOR: UC Riverside (10-25-88)

RESPONSE: Not all the cost information has been developed for Tiers II and III control measures. Therefore, Quantitative assessments of affordability would be difficult.

4-18.36

COMMENT: **Every dollar lost from implementing the Plan will be multiplied throughout all sectors in the Basin's economy. Many of our members' suppliers and subcontractors have already left the area because they cannot remain cost competitive under the present and anticipated heavy regulatory burdens.**

COMMENTOR: Valley Industry and Commerce (10-26-88)

RESPONSE: Both benefits and costs will be multiplied through interrelationship among sectors in the local economy. Sectors which can remain competitive will stay in the Basin.

4-18.37

COMMENT: **The high cost of control measures will result in massive reduction of employment as firms must either go out of business or move out of the area.**

COMMENTOR: Van Nuys Area Chamber of Commerce (10-14-88)

RESPONSE: Implementation of control measures benefits the air pollution control industry. The net impact on employment has to be evaluated by considering both positive and negative impacts.

4-18.38

COMMENT: **The number of jobs cited in the draft EIR (p. 4-18-1) is not supported and disregards several important negative impacts on the regional employment.**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: This statement should have been taken out in the draft EIR and is contained in the FEIR.

4-18.39

COMMENT: **The draft EIR should contain indirect impacts on households, including regional employment; and the health impacts of reduced household income and increased unemployment. The Draft EIR does not provide sufficient quantitative information on many of direct and indirect impacts to assess their significance.**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: These impacts are discussed in the FEIR to the extent that they induce environmental consequences. According to the CEQA requirements, direct and indirect economic impacts should be assessed to the extent that these impacts induce environmental consequences.

4-18.40

COMMENT: **Net impact of the AQMP will depend on the fraction of control equipment manufactured in the region, the mix of control costs between capital and operating expenses, and the propensity of Basin residents to purchase goods and services within the region.**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: These statements are correct.

4-18.41

COMMENT: **The draft EIR should provide quantitative information on the equity impacts of the AQMP. Will lower income groups receive a correspondingly larger share of the air quality benefits?**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: The DEIR has discussed the potential impacts of the AQMP on the lower income group qualitatively.

4-18.42

COMMENT: **Reductions in household income that come about when Basin residents pay the cost of pollution control will lead to reduced expenditures for other goods and services.**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: Not all control costs can be passed on to end users. Without analyzing the impacts of the AQMP on household income quantitatively, one can not determine whether the net impact on household income is positive or negative; without this

analysis, one cannot estimate the change in expenditures for other goods and services.

4-18.43

COMMENT: **We would support a plan that is done in conjunction with economic goals and social impacts that we are trying to meet as well.**

COMMENTOR: City of Garden Grove (TR10-27-88)

RESPONSE: The primary goal of the District is to manage air quality in the Basin. Air pollution in the Basin has caused damage to health, agriculture, forest, materials, visibility, etc. The focus of the AQMP is to reduce or eliminate such economic losses. It is difficult for the District to draw any comparisons between the AQMP and the economic goals that your City has set but not clearly stated in your comments.

4-18.44

COMMENT: **We cannot project to what degree particularly an industry is going to be impacted. It will vary from company to company. Small businesses are going to run into many more obstacles in this area than the larger companies, and more financial resources may be necessary for these small companies to continue in the Basin.**

COMMENTOR: Industrial Environmental Coalition of Orange County (TR10-27-88)

RESPONSE: The FEIR will address the impacts of control measures on industries by employment sizes of their establishments. The District will examine data sources and work with trade associations and other agencies to determine the size of an establishment and provide information on financial assistance to small businesses.

4-18.45

COMMENT: **Many of the measures have no cost or yield estimates at all. There is no summary of comparing costs and yields of different measures.**

COMMENTOR: Group Against Smog and Pollution (TR10-27-88)

RESPONSE: The dollar cost-and-yield comparison is not done at each individual control measure level, although the cost information may be provided for a single control measure. The total dollar air quality benefit is based on compliance with the federal standards.

4-18.46

COMMENT: **Is $8 million a day a price that the residents would be willing to pay for clean air?**

COMMENTOR: City of San Bernardino (TR10-12-88)

RESPONSE: This represents control costs for AQMP control measures with cost data and does not address the local residents' willingness to pay.

4-18.47

COMMENT: **There is no side-by side comparison of the level of emission reductions required by each source and the cost of reductions on a marginal cost or even cost per ton basis. An attempt should have been made to do a marginal cost/marginal benefit analysis of control measures.**

COMMENTOR: Public Utilities Commission (11-8-88)

RESPONSE: The marginal cost/benefit analysis would mean a different approach to evaluating the AQMP. The feasibility of this approach needs to be further evaluated.

4-18.48

COMMENT: **The EIR does not address the change in peak load and baseload demand resulting from electrification in Tiers I, II, and III.**

COMMENTOR: Public Utilities Commission (11-8-88)

RESPONSE: The DEIR has addressed the impact of vehicle charging on electric utility load factors.

4-18.49

COMMENT: **The costs and environmental impacts of replacing the existing fuel oil infrastructure need to be identified explicitly and included in the District's considerations.**

COMMENTOR: Public Utilities Commission (11-8-88)

RESPONSE: The impact of phasing out fuel oil is discussed in the FEIR.

4-18.50

COMMENT: **Any plan for improving air quality must accurately describe its full cost to residents and businesses in the basin so that the plan can be balanced with other society goals.**

COMMENTOR: Minority Coalition for Responsible Growth (TR10-22-88)

RESPONSE: The District has the authority to manage the air quality in the Basin. Cost estimates have been provided for known technological applications. The impacts of control measures

on various sectors of the local economy is discussed in the FEIR.

4-18.51

COMMENT: **Not enough key information on costs and socioeconomic impacts has been developed.**

COMMENTOR: Minority Coalition for Responsible Growth (TR10-22-88)

RESPONSE: Additional information on costs and socioeconomic impacts is provided in the FEIR.

4-18.52

COMMENT: **We are extremely concerned about the great potential for disproportionate economic impacts which could be caused by the proposed regulations, especially in the manufacturing industry, where the minority share of the labor force ranges from 45 to 70%.**

COMMENTOR: Minority Coalition for Responsible Growth (TR10-22-88)

RESPONSE: The District acknowledges the impacts of AQMP on manufacturing industries and minority groups in the FEIR. However, the magnitude of these impacts will depend on the composition of minority groups in each manufacturing industry.

4-18.53

COMMENT: There is little evidence in the Plan to indicate that an effort was made to identify the cost effectiveness of individual measures in achieving air quality and other regional goals.

COMMENTOR: City of Long Beach (TR10-22-88)

RESPONSE: The District is given the authority to manage the air quality in the Basin. Cost estimates of control measures are developed to assess the cost effectiveness of achieving the clean air goal.

4-18.54

COMMENT: The EIR's assessment of the secondary and indirect economic impacts is cursory, and the positive impact of the Plan on employment cannot be substantiated without the information presented. Moreover, the EIR appears to disregard several important potential negative impacts of the Plan on Regional employment. For example, what is the impact of control costs on industrial location decisions? What are the impacts of reduced regional income due to control costs that are passed on to customers in the form of higher prices, and to local governments in the form of reduced tax revenues?

COMMENTOR: L.A. Chamber of Commerce (TR 10-24-88)

RESPONSE: Implementation of the AQMP will result in positive and negative economic impacts. The Plan will stimulate economic activity in air pollution control industries. It will also impose a cost burden on some industries. The net effect, however, is difficult to ascertain. Industries absorbing most of the control costs will be highly impacted. Control costs, however, is not the only factor affecting the firm's location decision. Impact on product prices are addressed in the FEIR.

4-18.55

COMMENT: **While the Plan notes the importance of potential equity impacts on lower income groups, there is no empirical evidence which would enable the significance of these distributional impacts to be determined. Even using the Plan's direct cost estimates for Tier I alone, the Chamber is concerned that these would amount to $900 annually for an average family of four.**

COMMENTOR: L.A. Chamber of Commerce (TR 10-24-88)

RESPONSE: The DEIR has discussed the impacts on lower income groups qualitatively. The cost per capita is used for presentation purpose only and should not be interpreted as the incidence of the cost.

4-18.56

COMMENT: **The potential of the Plan's economic impacts are staggering. The impact will be huge in terms of increased costs of doing business and will probably result in forced business closures or relocations due to inability to comply while remaining competitive. This in turn will have a negative effect on employment and could potentially ruin the economy of the region.**

COMMENTOR: Economic Development Corporation of Los Angeles County (TR10-24-88)

RESPONSE: Although implementation of AQMP incurs costs to impacted industries, investments on control equipment will benefit the air pollution control industry. Both these positive and negative impacts are discussed in the FEIR. The magnitude of regulation is not the sole factor in determining business relocation.

4-18.57

COMMENT: **The AQMP cost and benefit calculations are unreasonable in its assumptions that a region can afford to sacrifice any amount of economic opportunities for the sole benefit of cleaner air. The Plan does not even postulate the question of marginal costs for marginal benefits. What specific amount of air quality improvement is expected to result from each strategy in the Plan, and at what cost?**

COMMENTOR: City of Santa Ana (10-27-88)

RESPONSE: The District presents the cost of implementing the AQMP and the benefits resulting from compliance with the clean air goal. The air quality improvement, in most cases, is not measured for each strategy for which the costs are presented. The District needs clarifications on marginal costs and benefits addressed herein.

4-18.58

COMMENT: **We do not believe that the secondary cost impacts on the economy, such as lost jobs, have been sufficiently examined . Tier I and II could produce about a 20,000 job loss to the region due to increased costs of these regulations.**

COMMENTOR: Southern California Gas Co. (TR 10-24-88)

RESPONSE: The employment impacts are assessed in the FEIR. Southern California Gas Company needs to provide enough information to the District to examine and evaluate these estimates.

4-18.59

COMMENT: **Measures to improve air quality must take into account the full impact on the quality of life for all citizens. It may eliminate jobs, dictate where people live and work, and even determine what products people can buy.**

COMMENTOR: Southern California Edison (10-24-88)

RESPONSE: These impacts are further addressed in the FEIR.

4-18.60

COMMENT: **What is an expected range of cost estimates in Table 4-18.1?**

COMMENTOR: ARCO (10-26-88)

RESPONSE: These cost estimates are derived from the average cost of each control measure. See the descriptions of control measures in Appendix IV-A for the range of costs of control measures.

4-18.61

COMMENT: **Tier II emission charges need to be clarified to indicate the sources to which it would be applied as a technology-forcing measure. Housing costs would be disproportionately impacted for low- and moderate-income housing units as a result of emission charges on building materials or architectural coatings.**

COMMENTOR: The Irvine Company (8-19-88)

RESPONSE: Tier II emission charges serve as an economic incentive, not a technology-forcing measure. Emission charges would be applied to sources that require technological breakthroughs for further emission reductions. The extent that these charges are passed on to consumers would determine the magnitude of impacts.

4-18.62

COMMENT: **The draft EIR does not provide any analysis of potential cost savings, advantages, and disadvantages from using emission charges to reduce emissions.**

COMMENTOR: CCEEB (10-27-88)

RESPONSE: More information on this is presented in Section 4-18 in the FEIR.

4-18.63

COMMENT: **Insufficient cost data are provided for the control measures, making assessment of economic impacts difficult as well as hindering the ability to compare potential alternatives.**

COMMENTOR:
Arco Products Company (10/26/88)
Blue Diamond (10/11/88)
CCEEB (10/25/88)
Chevron (10/26/88)
City of Anaheim (10/20/88)
City of Buena Park (10/27/88)
City of Claremont (10/27/88)
City of Culver City (10/27/88)
City of Fullerton (10/27/88)
City of Garden Grove (10/13/88)
City of Long Beach (10/22/88)
City of Los Alamitos (9/16/88)
City of Los Angeles, City Planning Commission (8/29/88)
City of Pomona (10/27/88)
City of Pomona (10/27/88)
City of Santa Ana (10/27/88)
City of Tustin (10/27/88)
Coalition for Clean Air (10/27/88)
County of Los Angeles, Chief Administrative Office (10/13/88)
County Sanitation Districts of Los Angeles County (10/27/88)
Federation of Labor, AFL-CIO (10/28/88)
Greg Ballmer, University of Riverside (10/25/88)
Los Angeles Area Chamber of Commerce (9/28/88)
McClintock, Kirwan, Benshoof, Rochesfort & Weston (8/15/88)
Public Utilities Commission (11/7/88)
Southern California Edison (10/27/88)
Southern California Gas Company (10/24/88)
Southern California Gas Company (10/27/88)
Unocal (10/27/88)
WOGA (10/27/88)

RESPONSE: Development of detailed cost data for some control measures will be undertaken at the time of rule development.

4-18.64

COMMENT: **How significant are 1 to 2% of NOX emissions? The additional 660 tons/day of solid waste resulting from gas turbine power generation are not adequately addressed in the DEIR. Also, approximately two thirds of electrical power is generated outside the Basin.**

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: Since the Basin is currently a non-attainment area for NOx, all cost effective NOx reduction measures must be considered.. The 660 tons/day of solid waste is a maximum estimate of the amount of recycled newspaper that would be generated if all non-complying Basin paper mills using recycled paper were to close due to Nox limits on their turbine operation. Most, if not all of this recycled paper would be absorbed by other paper mills, both within and outside the Basin. For further discussion, see District Revised Draft EIR -Proposed Rule 1134, Control of Oxides of Nitrogen from Stationary Gas Turbines.

One-third of the Basin's power is generated in-Basin, increased electricity demand may increase Basin emissions by one-third of the total.

4-18.65

COMMENT: **The DEIR states that "The economic impacts of the Tier III control measures are the most profound of all those in the AQMP. However, ... the specific nature of their economic impacts cannot be discerned completely ... This statement does not adequately address CEQA requirements for addressing economic impacts.**

COMMENTOR: Southern California Edison (10/27/88)
Orange County Board of Supervisors (10/27/88)

RESPONSE: According to the District CEQA Guidelines, economic or social guidelines may be presented in an EIR in whatever form the agency desires. Analysis of economic or social effects are

necessary only when they have significant affects on physical environmental parameters (Section 9.11 (b). In addition, any impacts a project may have on housing must also be considered in an EIR or added to the record in some other manner (Section 9.11 (c)).

However, Section 9.11 (a) of the District CEQA Guidelines specifically states:

"Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes."

4-18.66

COMMENT: **Basin hospitals are concerned about the policy to phase out fuel oil use. Hospitals run their backup generators for a total of 26 hours per year and conversion to a cleaner burning fuel may create disproportionate costs.**

COMMENTOR:
Antelope Valley Hospital Medical Center (9/14/88)
Brotman Medical Center (9/28/88)
California Medical Center - Los Angeles (9/15/88)
Corona Community Hospital (9/24/88)
Desert Hospital (9/18/88)
Downey Community Hospital (9/23/88)
Eisenhower Memorial Hospital (9/22/88)
Hi-Desert Medical Center (10/3/88)
Hospital Council of Southern California (9/30/88)
Hospital of the Good Samaritan
LaHabra Community Hospital (9/13/88)
Verdugo Hills Hospital (9/12/88)
Verdugo Hills Hospital (9/16/88)

RESPONSE: The cost-effectiveness of fuel oil phase out for specific sectors, such as hospitals, will be considered during formulation of the District rule.

4-18.67

COMMENT: **Regulations that would require that replacement aircraft meet Stage III criteria would prohibit the replacement of Stage II engines because the cost would be in excess of $10 million per airplane.**

COMMENTOR: Air Transport Association (10/15/88)

RESPONSE: Stage II aircraft can continue to be used outside the Basin. Use of only Stage III aircraft within the Basin would entail additional costs for air carriers beyond current costs or modifications in Stage II operations.

4-18.68

COMMENT: **Reactivation of recently cancelled Weatherization Financing and Credits Program at Southern California Edison and Southern California Gas Company would affect demand-side management budgets. These effects need to be considered.**

COMMENTOR: Public Utilities Commission (11/7/88)

RESPONSE: Financing of these programs would likely occur through rate increases. HIgher rates are themselves as stimulus for conservation.

4-18.69

COMMENT: **The cost assumptions used in development of the alternative fuels strategy are unrealistic. These cost factors will influence the ability to establish an adequate methanol distribution network. The cost differential between methanol and natural**

gas also will affect the viability of methanol as an alternative fuel.

COMMENTOR: California Council for Environmental and Economic Balance (8/12/88)
Coalition for Clean Air (10/27/88)
Highway Carriers Association (7/7/88)
Metropolitan Water District of Southern California (10/27/88)

RESPONSE: Requirements to use clean fuels, or their equivalent, will create a demand for these alternatives which the private sector is expected to meet. High initial fixed costs of infrastructure can be recovered over time, as in other innovative products industries. Natural gas and LPG are also alternative fuels.

4-18.70

COMMENT: **The anticipated impacts on agricultural operations need to be discussed in greater depth.**

COMMENTOR: City of Claremont (10/27/88)
Metropolitan Water District of Southern California (10/27/88)

RESPONSE: The economic impacts on agriculture are $6.6 million for the livestock industry and $3.3 million for the agricultural services sector. Currently, damage to agriculture from air pollution is estimated at $24.1 million. (See Section 4-18 of the FEIR.)

4-18.71

COMMENT: **The impacts from reductions in per capita income due to the Plan need to be addressed.**

COMMENTOR: CCEEB (10/25/88)

RESPONSE: There is no indication that per capita income will be reduced by the AQMP.

4-18.72

COMMENT: **Introduction of new paint products, solvents, and coatings will result in a shorter lifetime and higher maintenance costs to maintain paint on ground equipment. Increases capital costs for new ground service vehicles will also be incurred.**

COMMENTOR: **Air Transport Association (10/15/88)**

RESPONSE: Coating durability requirements of vehicle manufacturers could be strengthened through more stringent procurement procedures. Improvements in air quality are expected to reduce damage to painted surfaces.

4-18.73

COMMENT: **The comparison of partial costs (65 cents per day per person) versus a benefit estimate ($2 per day per person) that assumes ozone attainment is misleading.**

COMMENTOR: CCEEB (10/25/88)
City of Garden Grove (10/13/88)
City of Santa Ana (10/27/88)
Federation of Labor, AFL-CIO (10/28/88)
Greg Ballmer (10/25/88)
Southern California Edison (10/27/88)
Southern California Gas Company (10/27/88)

RESPONSE: Reductions in ozone concentrations to meet the federal standards are assumed to remove the health costs attributed to ozone damage to health.

4-18.74

COMMENT: **The economics of moving solid wastes outside the Basin should be reviewed. This method of disposal would cost from five to as much as ten times the current disposal cost in certain areas of the Basin.**

COMMENTOR: County of Orange, Environmental Management Agency (10/24/88)

RESPONSE: Detailed cost studies will be undertaken at he time of rule development. Increased disposal costs act as an incentive for source reduction.

4-18.75

COMMENT: **The socioeconomic impacts of the Plan need to be quantified and the impacts on lower income groups addressed in greater detail. Empirical evidence for these impacts should be provided.**

COMMENTOR: CCEEB (10/25/88)
City of Long Beach (8/12/88)
Coalition Against the Pipeline (10/22/88)
Councilman Farrell (10/22/88)
Kinney Heights Homeowners Association (10/22/88)
Southern California Edison (10/27/88)
Southern California Edison (8/15/88)
Valley Industry and Commerce Association (10/31/88)

RESPONSE: Section 4-18 of the FEIR contains additional economic impact data and discussion. Since control measures contained in the Plan have not been applied in this scope before, empirical evidence is not available.

4-18.76

COMMENT: **The Plan requires significant financial outlays by both local jurisdictions, businesses, and individuals without a guarantee of ozone attainment. The overall socio-economic impacts of the plan should be more adequately discussed.**

COMMENTOR: Air Transport Association (10/15/88)
Building Industry Association (10/27/88)
Chevron Corporation (10/27/88)
City of Anaheim
City of Buena Park

City of Buena Park (10/26/88)
City of Buena Park (9/6/88)
City of Claremont (10/27/88)
City of Claremont (10/27/88)
City of Commerce (9/19/88)
City of Costa Mesa (9/7/88)
City of Culver City (10/27/88)
City of Fullerton (9/28/88)
City of Garden Grove (10/13/88)
City of La Habra (8/9/88)
City of La Mirada (10/20/88)
City of Long Beach (8/12/88)
City of Los Alamitos (9/16/88)
City of Los Angeles
City of Los Angeles, City Planning Commission (8/29/88)
City of Santa Ana (10/27/88)
City of Tustin (10/27/88)
Councilman Farrell (10/22/88)
Federation of Labor, AFL-CIO (10/28/88)
Arco Products Company (10/26/88)
Fullerton
Harriet Wieder, Supervisor, County of Orange (9/7/88)
McClintock, Kirwan, Benshoof, Rochefort and Weston for So. Cal. Air Quality Alliance of the California Manufacturers Assoc.
Orange County Board of Supervisors (10/27/88)
Pomona (10-28-88)
Ray Remy for LA Chamber of Commerce (9-28-88)
Southern California Gas Company (10/27/88)
Temple City
Unocal Corporation (10/27/88)
Valley Industry and Commerce Association (10/31/88)
Vernon

RESPONSE: The AQMP contains contingency measures which can be applied if ozone attainment is not achieved by those measures contained in the PLan. Though the costs of the AQMP are significant, the benefits from reduced health and material damage are also significant. Further analysis of the socioeconomic impacts will be provided during the rule development process for each control measure.

4-18.77

COMMENT: **The control measures in the Plan may significantly increase the cost of doing business in the Basin. The impacts from such changes need to be more fully considered. Examples include lifestyle changes and businesses and industries moving outside the Basin.**

COMMENTOR: Arco Products Company (10/26/88)
CCEEB (10/25/88)
City of Buena Park (10/26/88)
City of Buena Park (9/6/88)
City of Long Beach (8/12/88)
City of Moreno Valley (10-27-88)
City of Pomona (10/28/88)
City of Vernon
City of Vernon (8/30/88)
WOGA (11/27/88)

RESPONSE: In the absence of prior experience, assumptions must be made. As experience with specific technologies and control measures is gained, the assumptions can be updated.

4-18.78

COMMENT: **The plan may have a significant negative economic impact of on small businesses.**

COMMENTOR: Luster Cote (8/8/88)
County of Los Angeles, Chief Administrative Office (8/12/88)
Federation of Labor, AFL-CIO (10/28/88)
Greater Van Nuys Area Chamber of Commerce (10/14/88)
Greg Ballmer (10/25/88)
Industrial Environmental Coalition of Orange County (10/27/88)
Los Angeles Chamber of Commerce (9/28/88)
Planning Directors Association of Orange County (10/24/88)
Public Utilities Commission (11/7/88)
Southern California Edison (8/15/88)
Southern California Gas Company (10/27/88)
Temple City
Texaco Refining and Marketing Inc. (10/27/88)
Valley Industry and Commerce Association (10/31/88)

RESPONSE: The impacts on small businesses are addressed in Section 4-18. The District also has a program to assist small businesses in complying with District Rules and Regulations.

4-18.79

COMMENT: **The use of the terms "gross national product" and "gross regional product" hinders evaluation of the economic impact analysis.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Comment noted. These terms are commonly used in District economic evaluations.

4-18.80

COMMENT: **Page 4-18-5 has the wrong SIC industries identified in terms of impacts on the economy.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: This section has been revised accordingly.

4-18.81

COMMENT: **It is unclear how the District would influence telecommunication, given its present authority.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The District cannot impose telecommunication. The District can provide leadership, encouragement, advise, and example by its own staff engaging in experimental telecommunications programs.

4-18.82

COMMENT: **The Growth Management section on page 4-18-14 is unrealistic. For a variety of reasons, residents will not relocate just to be near employment, and it cannot be assumed that local government will assist.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Comment noted. Growth management is an integral part of this plan and the Growth Management Plan of SCAG.

4-18.83

COMMENT: **Improved air quality will not attract residents. Instead, the "probable economic depression" will prevent new residents from coming to the Basin.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: Comment noted. District economic analysis does not indicate a future depression caused by the AQMP.

4-18.84

COMMENT: **Energy conservation through recycling will not be realized because the AQMP control measures will prevent recyclers from operating, thereby overstating the benefits and market.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: This program assumes a demand for recycled materials, but the market cannot be analyzed at this time. District economic impact analysis does not find that it would be unprofitable for businesses to operate in the Basin

4-18.85

COMMENT: **The assertion on page 4-18-17 that Tier I can be implemented in five years is unsupported.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: The plan specifies the five year implementation time frame, based on its analysis and technical documentation.

CHAPTER 5 ALTERNATIVES TO THE PROPOSED PROJECT

COMMENT 5.1: **More detailed and in-depth analysis of the ROG-only alternative is necessary. Such an alternative may have the potential to achieve federal ozone standards in a shorter time-frame than the Plan as well as at significantly less cost.**

COMMENTOR: Orange County Board of Supervisors (10/27/88)
Public Utilities Commission (11/7/88)
Shell Oil Company (10/27/88)
Southern California Gas Company (10/24/88)
Southern California Edison (10/27/88)
Texaco Refinery and Marketing Inc. (10/27/88)

RESPONSE: The ROG-only alternative is addressed in Chapter 5 of the FEIR.

COMMENT 5.2: **More detailed discussion of the alternatives and their environmental and economic impacts, as well as consideration of other alternatives, is needed. This should then be compared to the AQMP as proposed.**

COMMENTOR: Arco Products Company (10/26/88)
CCEEB (10/25/88)
Greater Van Nuys Area Chamber of Commerce (10/14/88)
Greg Ballmer, University of Riverside (10/25/88)
Highway Carriers Association (7/7/88)
Ira Reiner, Los Angeles District Attorney (10/27/88)
Los Angeles Chamber of Commerce (8/15/88)
Orange County Board of Supervisors (10/27/88)
Southern California Edison (10/27/88)
Texaco Refining and Marketing,Inc. (10/27/88)
Western Liquid Gas Association (10/27/88)

RESPONSE: Alternatives to the Plan are addressed in Chapter 5 of the FEIR. This section also contains a matrix summarizing the impacts of the Plan.

COMMENT 5.3: **The DEIR does not succinctly address the impacts of partial or incomplete implementation.**

COMMENTOR The Irvine Company (10/27/88)

RESPONSE: A summary of the impacts of the alternatives to the Plan are presented in Chapter 5 of the FEIR.

COMMENT 5.4: **A Least Cost Alternative should be considered, maximizing air quality benefits while minimizing costs.**

COMMENTOR: CCEEB (10/25/88)
City of Claremont (10/27/88)
City of Long Beach (8/12/88)
County Sanitation Districts of Los Angeles County (10/27/88)
Industrial Environmental Coalition of Orange County (10/27/88)
Irvine Company (10/18/88)
Los Angeles Area Chamber of Commerce (9/28/88)
Shell Oil Company (10/27/88)
Southern California Edison (10/27/88)
Southern California Edison (8/15/88)

RESPONSE: Alternatives to the Plan are addressed in Chapter 5 of the FEIR. Cost-effectiveness is one of several criteria used in recommending the imp[lementation order of the Plan.

CHAPTER 6 CUMULATIVE IMPACTS/LONG-TERM VERSUS SHORT-TERM

COMMENT 6.1: **As each individual control measure is implemented, successive control measures may become more difficult to implement. The cumulative aspects of the Plan and the potential for individual measures to run at cross-purposes with each other need to be addressed.**

COMMENTOR: Bryan Allen (10/27/88)
CCEEB (10/25/88)
Chevron (10/26/88)
Chevron Corporation (10/27/88)
City of Santa Ana (10/27/88)
Irvine Company (10/18/88)
Irvine Company (10/27/88)
Mobil Oil Corporation (10/27/88)
Orange County Board of Supervisors (10/27/88)
Southern California Edison (10/27/88)

RESPONSE: The cumulative impacts of the control measures are addressed in Chapter 6 of the FEIR.

COMMENT 6.2: **The population forecast should be examined in light of the Plan. The control measures included in the Plan are likely to affect the growth that occurs in the Basin.**

COMMENTOR: Brookfield Productions, Inc.
City of Buena Park (9/6/88)
City of Chino (10/26/88)
City of Tustin (10/27/88)
Coalition for Clean Air (10/27/88)
Greg Ballmer, University of Riverside (10/25/88)
Group Against Smog Pollution (10/27/88)
Ira Reiner, Los Angeles District Attorney (10/27/88)
Southern California Edison (8/15/88)
Southern California Gas Company (10/27/88)

RESPONSE: Potential changes in population growth due to socioeconomic impacts from the Plan are addressed in Section 4-18 of the FEIR.

COMMENT 6.3: **The DEIR does not address changing background concentrations of atmospheric gases due to the AQMP. Such changes could include enhancement of the Greenhouse effect and further loss of the high altitude ozone shield.**

COMMENTOR: Greg Ballmer, University of Riverside (10/25/88)
Southern California Gas Company (10/24/88)

RESPONSE: The AQMP as a whole is expected to result in a net reduction of greenhouse gases.. Where electricity replaces fuel combustion, CO2 emissions are reduced, since most of the new electricity suply is expected to come from non-combustion sources, such as solar, hydro, and energy conservation. The AQMP also contains measures for the reduction of high-carbon content fuel such as fuel oil and solid fossil fuels.

CHAPTER 7 SIGNIFICANT IRREVERSIBLE CHANGES WHICH WOULD BE INVOLVED IN IMPLEMENTATION OF THE PROPOSED AQMP

COMMENT 7.1: **The irretrievable commitment of resources and use of significant non-renewable resources need to be discussed further.**

COMMENTOR: Arco Products Company (10/26/88)
Southern California Edison (10/27/88)

RESPONSE: An expanded discussion of irreversible changes that may result from the Plan are addressed in Chapter 7 of the FEIR.

CHAPTER 8 - GROWTH-INDUCING IMPACTS OF THE AQMP

8.1

COMMENT: **The commentor disputes the DEIR conclusion that a detailed analysis of growth inducing impacts would be unduly speculative.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: District CEQA Guidelines Section 10.5 states that: "If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact." The impacts analysis done for the EIR does not indicate whether or not the AQMP would be indeed strongly growth inducing or retarding. The development and analysis of scenarios, as suggested by the commentor is speculative because of the uncertain nature of the content of the scenarios developed for analysis.

8.2

COMMENT: **There is a conflict in statements on growth inducement between page 8-1 and 6-2 of the DEIR.**

COMMENTOR: WOGA (10/27/88)

RESPONSE: There is no apparent conflict between the statements. Page 6-2 states that the plan itself will not cause population growth, while page 8-1 states that improved air quality, as one of the results of the plan, will induce growth. The plan can affect location decisions in both a positive and negative manner for factors other than air quality.

REVIEW TIME FRAME

COMMENT R-1: **More time is needed in order to evaluate the Plan and DEIR.**

COMMENTOR:

Assemblyman Ross Johnson (9/12/88)
Building Industry Association (10/27/88)
Chevron
City of Anaheim (10/20/88)
City of Buena Park (10/26/88)
City of Buena Park (9/6/88)
City of Claremont
City of Claremont (8/9/88)
City of Costa Mesa (9/7/88)
City of Costa Mesa (9/7/88)
City of Culver City (10/27/88)
City of Cypress (10/20/88)
City of Fountain Valley
City of Fullerton (9/28/88)
City of Garden Grove (10/13/88)
City of Irvine (10/18/88)
City of La Habra (8/9/88)
City of La Mirada (10/20/88)
City of Long Beach (10/22/88)
City of Long Beach (8/12/88)
City of Newport Beach (10/18/88)
City of Placentia (10/19/88)
City of Placentia, (8/12/88)
City of San Bernardino (10/31/88)
City of San Juan Capistrano (10/17/88)
City of Santa Ana (10/17/88)
City of Santa Ana (10/27/88)
City of Seal Beach (9/15/88)
City of Stanton (10/17/88)
City of Tustin (10/27/88)
City of Westminster (10/13/88)
County of Los Angeles, Chief Administrative Office (10/13/88)
County of Los Angeles, Chief Administrative Office (8/12/88)
Federation of Labor, AFL-CIO (10/28/88)
Greater Van Nuys Area Chamber of Commerce (10/14/88)
Los Angeles Area Chamber of Commerce (8/15/88)
McClintock, Kiorwan, Benshoof, Rocheport & Weston (8/15/88)
McClintock, Kirwan, Benshoof, Rochefort and Weston for So. Cal. Air Quality Alliance of the California Manufacturers Assoc.
McDonnell Douglas (10/26/88)
Orange County Board of Supervisors (10/27/88)

Planning Directors Association of Orange County (10/24/88)
Ray Remy - LA Area Chamber of Commerce
So. Cal. Gas Co.
Texaco Marketing and Refining Inc. (10/27/88)
Valley Industry and Commerce Association 10/31/88)

RESPONSE: A 45-day public review period was provided by the District. The District Board considered an extension and chose not to extend the review period. The review period for the DEIR was consistent with the provisions of CEQA.

DEPTH OF ANALYSIS

COMMENT D-1: **More detailed information and analysis is needed for individual control measures in order to adequately assess the impacts of the Plan.**

COMMENTOR:
Arco Products Company (10/26/88)
ARCO Products Company (10/26/88)
Blue Diamond (10/11/88)
CCEEB (10/25/88)
Chevron Corporation (10/27/88)
City of Buena Park (9/6/88)
City of Irvine (10/18/88)
City of La Mirada (10/20/88)
City of Long Beach (10/22/88)
City of Los Alamitos (9/16/88)
City of Ontario (10/17/88)
City of Pomona (10/27/88)
City of Tustin (10/27/88)
Coalition for Clean Air (10/27/88)
County Sanitation Districts of Los Angeles County (10/27/88)
Federation of Labor, AFL-CIO (10/28/88)
Industrial Environmental Coalition of Orange County (10/27/88)
Ira Reiner, Los Angeles District Attorney (10/27/88)
Orange County Board of Supervisors (10/27/88)
Planning Directors Association of Orange County (10/24/88)
Public Utilities Commission (11/7/88)
Shell Oil Company (10/27/88)
Southern California Edison (10/27/88)
Southern California Gas Company (10/24/88)
Southern California Gas Company (10/27/88)
Texaco Refinery and Marketing Inc. (10/27/88)

Unocal Corporation (10/27/88)
Valley Industry and commerce Association (10/31/88)
Western Oil and Gas Association (10/27/88)

RESPONSE: The detailed impacts of individual control measures will be addressed during the rulemaking process. Implementation of the tactics identified in the Plan will only occur after a regulation is adopted pursuant to rulemaking authority granted the District or ordinances enacted by local governments. The EIR for the AQMP is intended to serve as a base document within the tiered system.

COMMENT D-2: **The Growth Management Plan and Regional Mobility Plan DEIR's, incorporated by reference into the AQMP EIR, were unavailable for review until October 21, 1988.**

COMMENTOR: The Irvine Company (10/27/88)

RESPONSE: This comment is correct. The GMP and RMP are subject to separate CEQA public review periods. They are scheduled for action shortly before the AQMP. Therefore, comments on the plans will be considered in the context of the AQMP decision. The public has been afforded the opportunity to comment on all the plans, anc commentors may continue to do so at the public hearing on the plan and EIR.

COMMENT D-3: **Both primary and secondary environmental and economic impacts that would be expected to result from the Plan need to be addressed more adequately.**

COMMENTOR: Southern California Gas Company (10/24/88)
Orange County Board of Supervisors (10/27/88)

RESPONSE: District CEQA Guidelines Section 10.11, Standards for Adequacy, states that: "An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR

inadequate, but the EIR should summarize the main points of disagreement amongst the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

The final EIR is a good faith effort to address impacts in sufficient detail to enable informed decision making. No general level EIR can be exhaustive, but all impact areas have been analyzed in sufficient detail to allow understanding of the primary and secondary potential environmental consequences of the AQMP.

MODELING

COMMENT MD-1: **Modeling should extend to the outer Basin areas. Use better procedures for measuring air quality progress.**

COMMENTOR: Building Industry Assoc. of So. Calif.
Inland Empire Economic Council (10/4/88)
W. J. Fassler - Chevron USA
Southern California Edison (10/15/88)
Southern California Gas Company (10/27/88)
Unocal Corporation (10/27/88)

RESPONSE: Outer Basin areas are included in the District's Air Quality planing efforts. Refer to Chapter 2 in the EIR >

MISCELLANEOUS

COMMENT MCS-1: **The environmental impact report should officially acknowledge and document problems from growth in the Basin as a whole.. It should not only document pollution, but document shortages (e.g., energy, water, land, and raw materials).**

COMMENTOR: Mark Drehson (10/7/88)

RESPONSE: The purpose of an environmental impact report is to provide information on any adverse environmental impacts that would occur as a result of the project being analyzed. Impacts on population growth, energy, water, land, and other natural resources have been discussed with respect to the impacts that may result from the AQMP.

COMMENT MSC-2: Typographical errors appear in the document.

COMMENTOR: Southern California Edison (10/27/88)

RESPONSE: These changes were noted and corrected in the text.

COMMENT MSC-3: On page 4-12-15, the DEIR appears to refer erroneously to measures 11-A and 11-B instead of 12-A and 12-B.

COMMENTOR: Bryan Allen (10/27/88)

RESPONSE: This change was noted and corrected in the text.

COMMENT MSC-4: "Analytical deficiencies" are noted for individual Tier I, Tier II, and Tier III control measures.

COMMENTOR: Southern California Edison (10/27/88)
Orange County Board of Supervisors (10/27/88)

RESPONSE: The environmental, economic, and "other" impacts addressed in the comment are discussed within the appropriate sections in the EIR. Just as with the AQMP, the EIR to the Plan represents a tiered approach where the micro-impacts of the measures will be addressed in subsequent EIR's developed as part of the rulemaking process. For those measures which would be implemented by local jurisdictions, changes in current policies will be reflected in amendments to their general plans and will be addressed in the EIR to the general plan.

COMMENT MSC-5: **The response to EIR comments should be an integral part of the planning process with all comments are meritous and deserving of equal treatment, regardless of the technical background and knowledge of the commentor.**

COMMENTOR: Bryan Allen (10/24/88)
Bryan Allen (10/27/88)

RESPONSE: All comments will be responded to and considered, taking into account the impacts and mitigations.

COMMENT MSC-6: **The chemical composition of PM10 has not been considered. What fraction of PM10 emissions could result from Portland Concrete paving of the facilities noted in measure 12.b.?**

COMMENTOR: Bryan Allen (10/24/88)
Bryan Allen (10/27/88)

RESPONSE: Regulation of particulate matter based on composition is not addressed in the AQMP. The environmental impacts from those measures to control particulate measures are addressed within the DEIR.

COMMENT MSC-7: **Construction of adequate drainage facilities in measure 12.b does not inherently avoid site specific erosion.**

COMMENTOR: Bryan Allen (10/24/88)
Bryan Allen (10/27/88)

RESPONSE: Construction of adequate drainage facilities, as noted in the measure, is intended to prevent water-eroded soil from collecting on roads and becoming a source of re-suspended road dust. It is not intended to address all potential erosion sites.

COMMENT MSC-8 : **In the DEIR there is an appendix which lists the persons and associations receiving the DEIR. Why did only 186 organizations and 16 citizens receive the DEIR?**

COMMENTOR: Coalition Against the Pipeline (10/22/8)

RESPONSE: The organizations and persons listed in Appendix B of the DEIR are part of a base mailing list, in addition to people that had specifically asked to receive a copy of the AQMP DEIR. A Notice of Completion was also provided to the State Clearinghouse which publishes and distributes information on the availability of Environmental Impact Reports. Furthermore, copies of the DEIR were distributed to each depository library within the Basin. In addition, copies of the DEIR were provided to each person or organization who requested a copy of the DEIR.

APPENDIX D

EXECUTIVE SUMMARY OF THE REGIONAL MOBILITY PLAN

I. EXECUTIVE SUMMARY

Introduction

The goal of the Regional Mobility Plan is to recapture and retain the transportation mobility levels of 1984, and the Plan provides specific means to address the goal. Accomplishing the elements of the Plan will require commitment from the region's elected officials, and a substantially more generous level of funding for transportation improvements than is currently available.

The Mobility Plan is part of an overall regional planning process, and is directly linked to and dependent on SCAG's Growth Management Plan, the Housing Allocation process, and the SCAQMD Air Quality Management Plan.

Within the Mobility Plan are four separate elements: growth management, transportation demand management, transportation systems management, and facilities development. The degree to which each of these is successful will both depend on and determine what is required from the others. (If, for instance, the demand management program has only limited success, facilities development may have to be increased to meet mobility goals.)

Needs

The Region's primary mode of travel will continue to be the automobile. The congestion problem, already severe in certain places and at certain times, will become acute, and the current frustration over highway crowding will become a groundswell of demand for better mobility.

- Our region, now home to 13.7 million people, faces significant growth. In the coming 22 years, nearly five million additional people will live here (the population is expected to be 18.3 million in 2010). The region's highways and streets -- many of which have already reached saturation levels during peak commuting hours -- will have to cope with the vehicles of the new residents, as well as the increased freight traffic that serves consumer needs and the region's economy.

- By 2010, daily person trips and work commutes on the region's streets and freeways will increase by 42 per cent:

	1984	2010
DAILY TRIPS (millions)	40.2	57.0
WORK COMMUTES (millions)	7.3	10.3

- If nothing is done to improve the transportation system, by 2010 these additional trips may bring traffic to a near halt on much of the system for much of the day.

This situation is detailed below:

TABLE I-1
MOBILITY PERFORMANCE INDICATORS

	1984	2010*
VEHICLE MILES TRAVELED (000's)	221,292	376,187
VEHICLE HOURS TRAVELED (000's)	6,343	19,575
HOURS OF DELAY (000's)	629	10,132
Percent Delay	10%	52%
SPEED (MPH)		
All facilities	35	19
Freeways	47	24
MILES OF CONGESTION		
AM Peak	452	2,564
PM Peak	856	4,567
TRANSIT RIDERSHIP		
Home-to-Work Trips	6.6%	5.1%

* No Build Scenario

For every 1,000 vehicles on the road today, there will be 1,420 tomorrow.

Even if our streets and roads could carry all these vehicles, the health of the region's people cannot. The automobile is a contributor to the region's air pollution problem -- the nation's worst -- and the Air Quality Management District and the Federal Government are pressuring the region to reduce automobile use.

To support the population and meet the growing production of the region, the transportation system will have to handle many more trucks and move much more tonnage through the ports and airports of the region. Congestion and delays on the highways will be further aggravated unless improved access and alternative routes can be developed for this traffic.

Solutions to the problem will be expensive. To compound matters, California state law has placed severe restrictions on the ability of local and state governments to raise the additional revenues needed to respond to these problems. Thus, the mobility problem requires not only technical and technological solutions, but financial solutions as well.

An overall plan is essential. Only by following a comprehensive strategy, one that shares the costs and benefits of the solution equitably, can the region retain or improve its mobility.

Goals

The goals of the Regional Mobility Plan are:

- To attain and maintain mobility in an environment of rapid population and economic growth.

- To provide sufficient capacity for the transportation demands of people and goods given the adopted growth-management forecast.

- To make the region accessible to everyone, including the elderly, the handicapped, and the transit-dependent.

- To induce changes in travel behavior that will lower the number of home-to-work trips and increase vehicle occupancy.

- To achieve an efficient balance among all modes, including new technologies.

- To use existing facilities to the maximum through system- and demand-management techniques.

- To protect the environment and support the region's plans for managing air quality.

- To support a pattern of development that shortens trip lengths through improved job/housing balance.

To promote these goals, the following objectives for the ground transportation system have been established:

- Maintain the freeway system at 450 miles of congestion (level F) through 2010.

- Achieve a 19% transit share of home-to-work trips by 2010.

- Limit to 60 million miles the increase in daily vehicle miles traveled over the next 20 years.

- Limit the daily vehicle hours of travel at approximately 7,850,000 hours through the year 2010.

- Increase the number of people ridesharing to 1,610,000 by 2010.

- Eliminate 3 million daily home-to-work trips by 2010.

- Reduce transportation emissions back to 1987 levels by 2010.

- Fund the $36.5 billion shortfall in highway, transit and demand management capital costs.

- Fund the $3.2 billion shortfall in annual highway, transit and demand management operating costs.

A series of short term objectives and policies to guide decision makers in the implementation of this plan and in the adoption of related local plans and programs has been developed.

Actions

Four separate strategies, each of which would achieve the mobility goals were carefully examined by SCAG's Executive Committee. The first relied on a major program of building transportation facilities; the second emphasized a balance of jobs and housing within the subregions to shorten commutes; the third was built around a combined program of demand and growth management; and the fourth placed a heavy emphasis on demand management.

After long deliberation, the Executive Committee concluded that the approach best meeting the region's mobility requirements would combine all of these components. This approach is called the Preferred Strategy. (See Figure I-1).

Under the Preferred Strategy:

- SCAG would work with county and local governments to encourage a better balance of jobs and housing in subregional areas. More people would live closer to where they work, and cross-region commute trips would be reduced. (See Figure I-2)

- A program of managing transportation demand would induce commuters to change work and commuting patterns. Certain actions could reduce the number of trips made; others would redistribute necessary trips through the more efficient use of vehicles and by spreading peak period commute-trips over more hours.

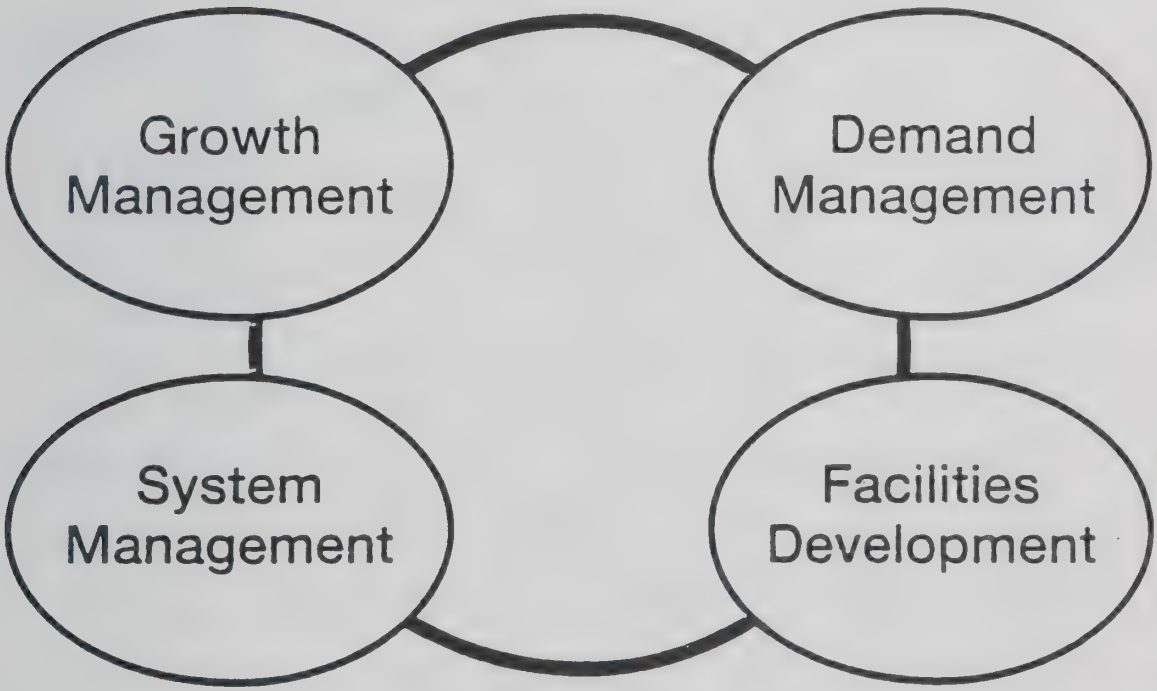
- A vigorous program of Transportation System Management would move traffic more efficiently, to make maximum use of the existing system.

- New facilities would be added to the existing transportation system, and give decided emphasis to modes that carry more than one person per vehicle: transit and car pooling.

- Establish a two level implementation effort of constrained and unconstrained projects. Constrained projects and programs would be completed over the twenty year period with monies from existing sources of revenue, and unconstrained projects and programs would be completed over the twenty year period from additional revenues raised through the implementation of the proposed financial program.

The plan proposes a program of actions that fosters the interaction of the components of this strategy. Actions are divided into those possible with present funding, and those that require additional resources (these latter are almost exclusively new roadway construction projects and transit facilities). The plan provides policy guidance to regional, county, and local entities, and suggests how private sector groups can help meet the goals. Finally, there are contingency suggestions for approaching the mobility issue if strategic elements in the Plan cannot be achieved to the degree assumed.

THE MOBILITY STRATEGY



SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Figure I-1

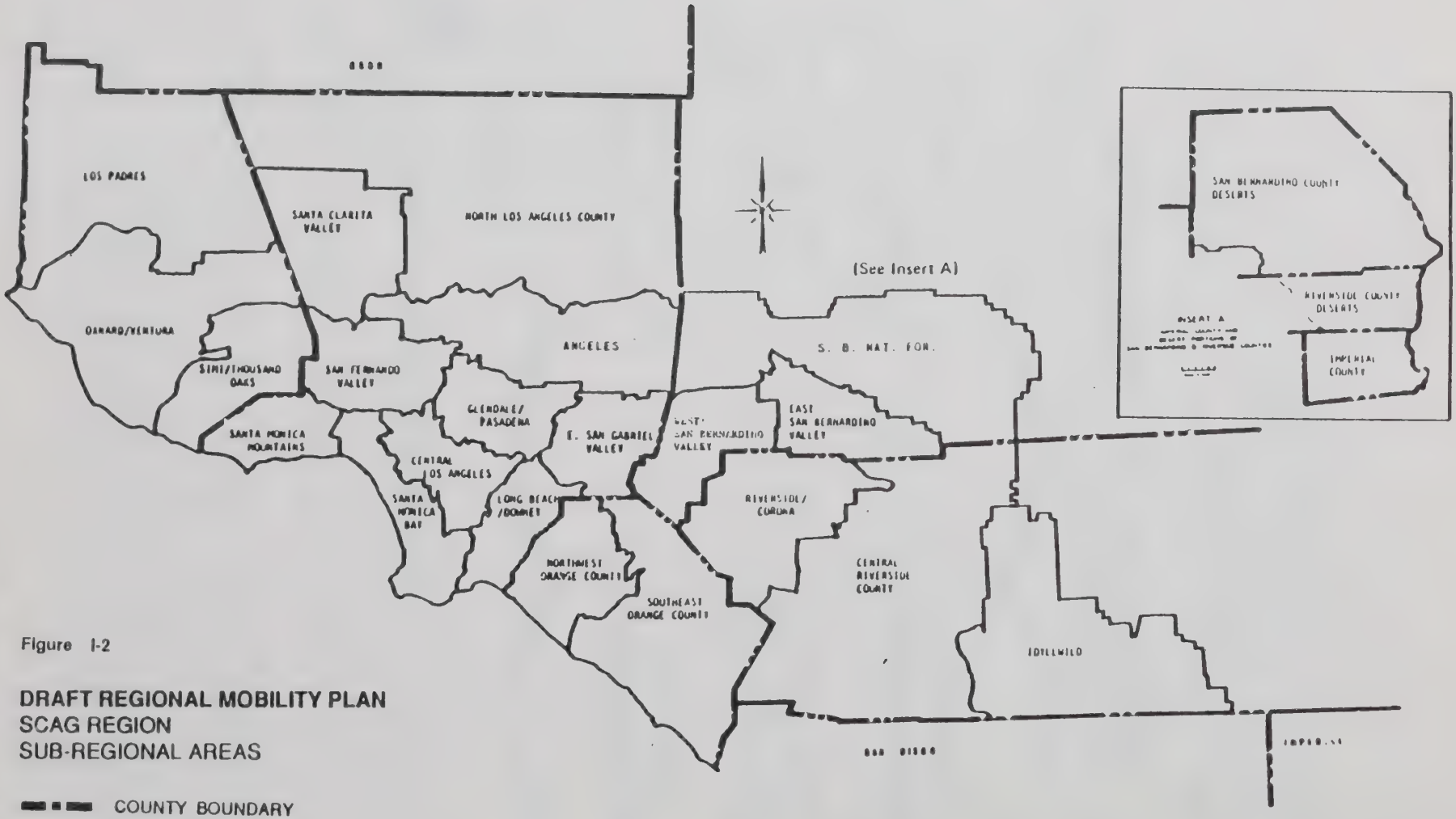


Figure I-2

DRAFT REGIONAL MOBILITY PLAN
SCAG REGION
SUB-REGIONAL AREAS

COUNTY BOUNDARY

SUBREGIONAL AREAS

scag
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Specific actions recommended under this plan are:

Transportation Demand Management

- o Eliminate 3 million daily work trips through work-at-home and telecommuting.
- o Increase ridesharing to 1,610,000 daily work-trips.
- o Increase transit usage to 1,400,000 daily work trips.
- o Study the implementation of user charges for congestion, peak period use, tolls, parking, fuel taxes and emissions fees.

Transportation System Management

- o Increase ramp metering and HOV bypass-lane programs.
- o Promote advanced signalization and coordination of key intersections throughout the region.
- o Improve programs to monitor, control, and respond to traffic incidents.

Taken together, these are expected to eliminate up to 800,000 hours of delay daily from the transportation system.

Highway Improvements

- o Build 1251 lane-miles of HOV and transitway lanes. (See Figure I-3)
- o Build 1846 lane-miles of additions to existing highways. (See Figure I-4, I-5)
- o Protect rights of way for future use.

Transit Development

- o Work with County commissions and operators to implement all projects within the financially constrained program. (The RTD Locally Preferred Alternative, Long Beach, Century, Pasadena, Valley and Coast Light Rail links, and Metrorail extensions; and Orange County Transitway Program). (See Figure I-6)
- o Identify and create new sources of funds needed to complete the unconstrained program of transit development. (See Figure I-7)
- o Work to improve regional and long range planning for transit through better coordination, funding, and delineation of responsibilities.

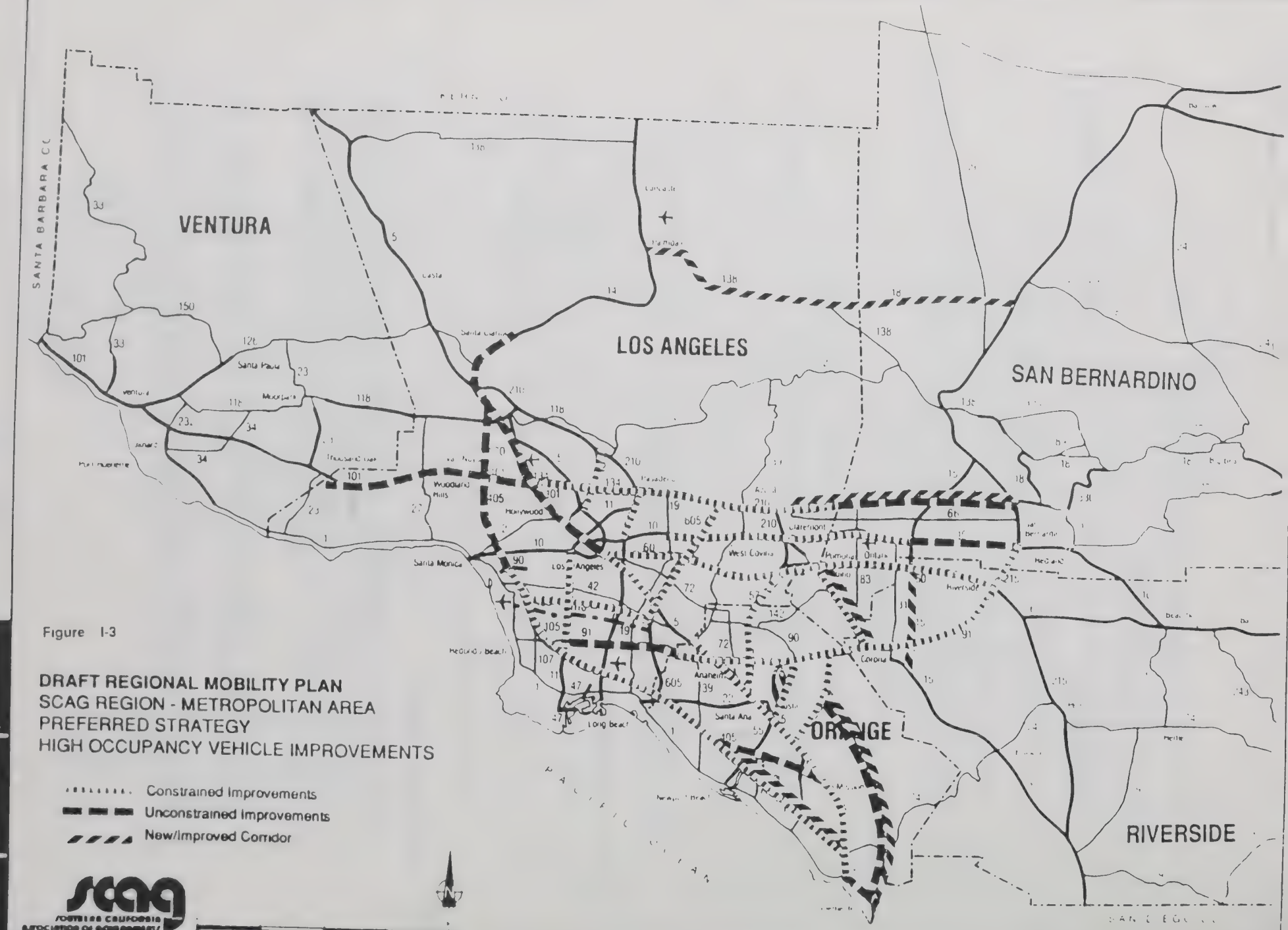


Figure I-3

DRAFT REGIONAL MOBILITY PLAN
SCAG REGION - METROPOLITAN AREA
PREFERRED STRATEGY
HIGH OCCUPANCY VEHICLE IMPROVEMENTS


KERN CO
SANTA BARBARA CO
VENTURA
LOS ANGELES
SAN BERNARDINO
ORANGE
RIVERSIDE
PACIFIC OCEAN
DRAFT REGIONAL MOBILITY PLAN
SCAG REGION - METROPOLITAN AREA
PREFERRED STRATEGY
MIXED FLOW IMPROVEMENTS
Constrained Improvements
Unconstrained Improvements
Constrained New/Improved Corridors
Unconstrained New/Improved Corridors
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Figure I-4

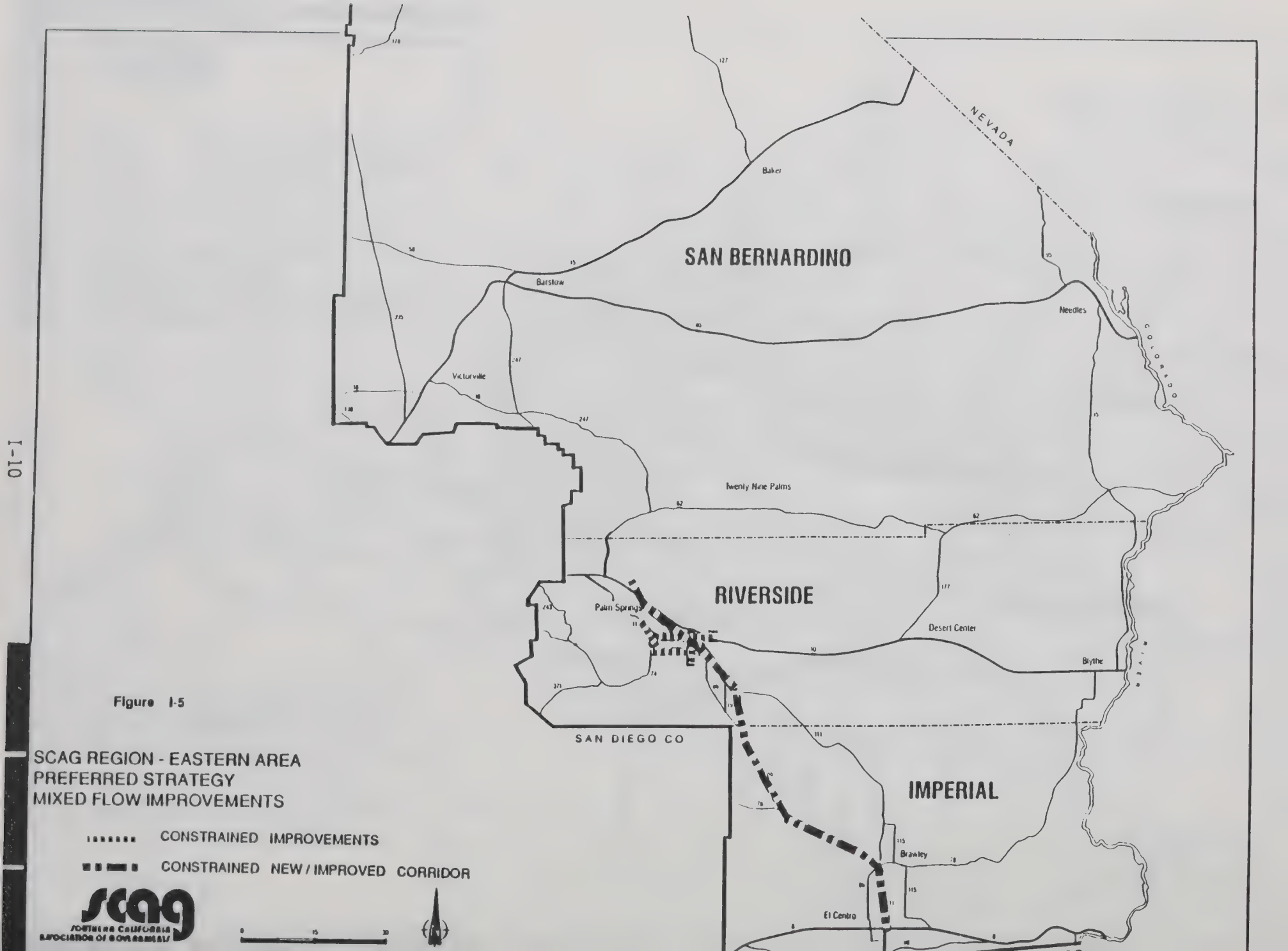
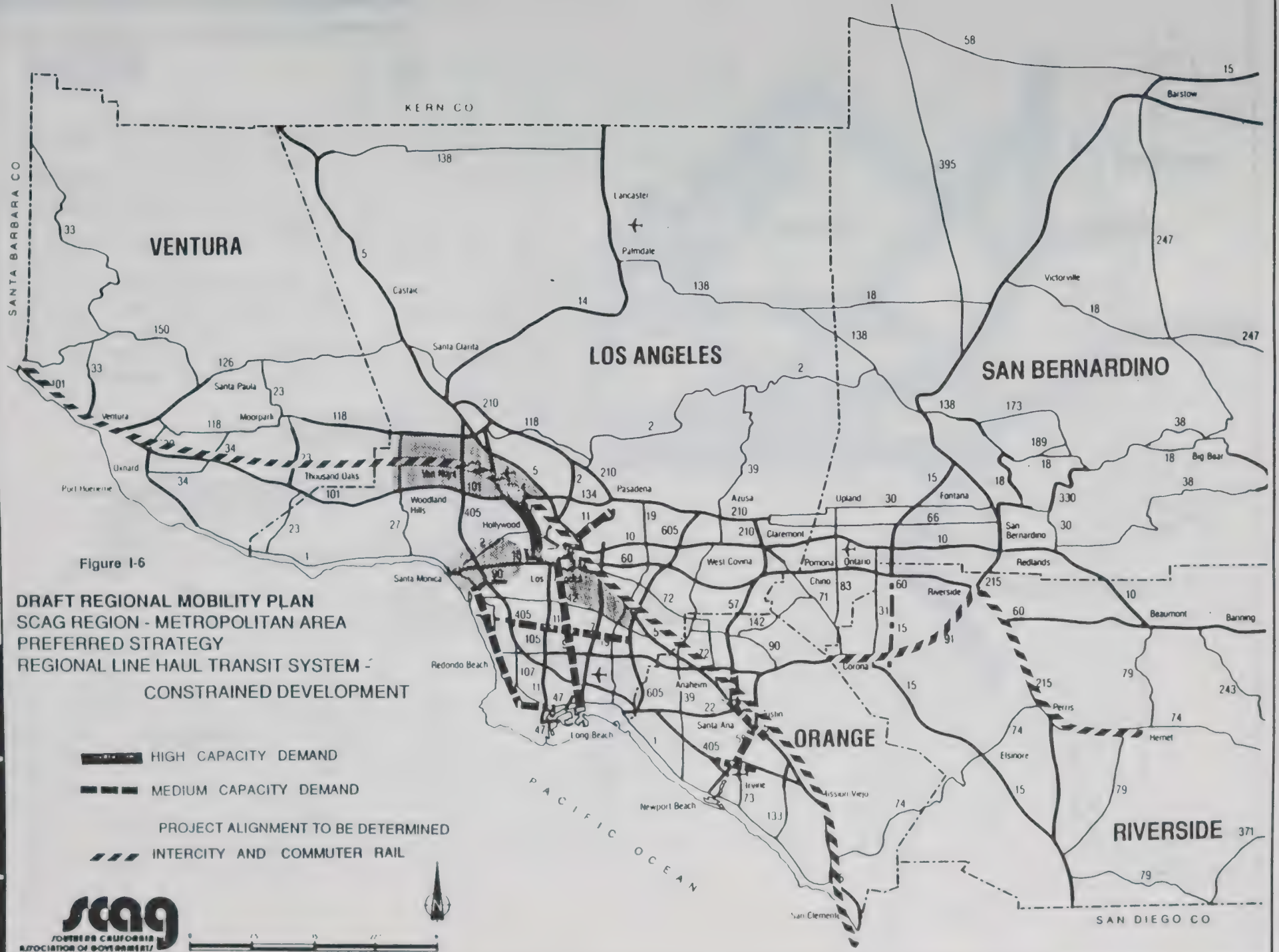


Figure I-5

SCAG REGION - EASTERN AREA
PREFERRED STRATEGY
MIXED FLOW IMPROVEMENTS

CONSTRAINED IMPROVEMENTS

CONSTRAINED NEW / IMPROVED CORRIDOR


KERN CO
SANTA BARBARA CO
VENTURA
LOS ANGELES
SAN BERNARDINO
ORANGE
RIVERSIDE
SAN DIEGO CO
PACIFIC OCEAN
Lancaster
Palmdale
Castaic
Santa Clarita
Barstow
Victorville
Big Bear
Ventura
Oxnard
Port Hueneme
Santa Paula
Moorpark
Thousand Oaks
Simi Valley
Woodland Hills
Hollywood
Santa Monica
Los Angeles
Pasadena
Azusa
Upland
Fontana
Claremont
West Covina
Pomona
Ontario
Chino
San Bernardino
Redlands
Riverside
Beaumont
Banning
Corona
Redondo Beach
Long Beach
Anaheim
Santa Ana
Irvine
Newport Beach
Laguna Niguel
Mission Viejo
Perris
Hemet
Elsinore
San Clemente
Figure I-6
DRAFT REGIONAL MOBILITY PLAN
SCAG REGION - METROPOLITAN AREA
PREFERRED STRATEGY
REGIONAL LINE HAUL TRANSIT SYSTEM -
CONSTRAINED DEVELOPMENT
HIGH CAPACITY DEMAND
MEDIUM CAPACITY DEMAND
PROJECT ALIGNMENT TO BE DETERMINED
INTERCITY AND COMMUTER RAIL
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KERN CO
SANTA BARBARA CO
VENTURA
LOS ANGELES
SAN BERNARDINO
ORANGE
RIVERSIDE
SAN DIEGO CO
PACIFIC OCEAN
Barstow
Victorville
Big Bear
Pasadena
Hollywood
Santa Monica
Long Beach
Irvine
Riverside
San Clemente
Newport Beach
Redondo Beach
Santa Paula
Moorpark
Malibu Hills
DRAFT REGIONAL MOBILITY PLAN
SCAG REGION - METROPOLITAN AREA
PREFERRED STRATEGY
REGIONAL LINE HAUL TRANSIT SYSTEM -
UNCONTSTRAINED DEVELOPMENT
EXISTING TRANSIT CORRIDORS (LACTC / OCTC)
CORRIDOR EXTENSIONS
HIGH CAPACITY DEMAND
MEDIUM CAPACITY DEMAND
SCAG
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Figure I-7

Commuter Rail

- Study and implement appropriate new commuter services between Los Angeles and South Orange County, Saugus, Ventura/Oxnard, and San Bernardino, and between San Bernardino/Riverside and Orange County.

Aviation

- Increase capacity and safety of operations at existing air-carrier airports when environmental impacts and ground access can be mitigated.

- Plan for the creation of one or more new air-carrier airports to reduce pressure on the existing system. Each subregion should provide environmentally acceptable capacity within its own market area to serve local short-haul demand.

- Provide appropriate access to the region's commercial airports to meet demand and mitigate local impacts.

Goods Movement

- Encourage increased use of intermodal services.

- Examine trucking and its impact on the economy of the region.

- Explore alternative peak-hour routes and schedules for trucking operations.

- Coordinate local regulations to improve trucking access and movement through the region.

Ports and Maritime

- Improve physical access by truck and by rail to the ports of Los Angeles and Long Beach, and to Port Hueneme.

System Performance

- The combined impact of these measures is expected to improve traffic over what would otherwise be expected as indicated in the following table. (See also Figure I-8)

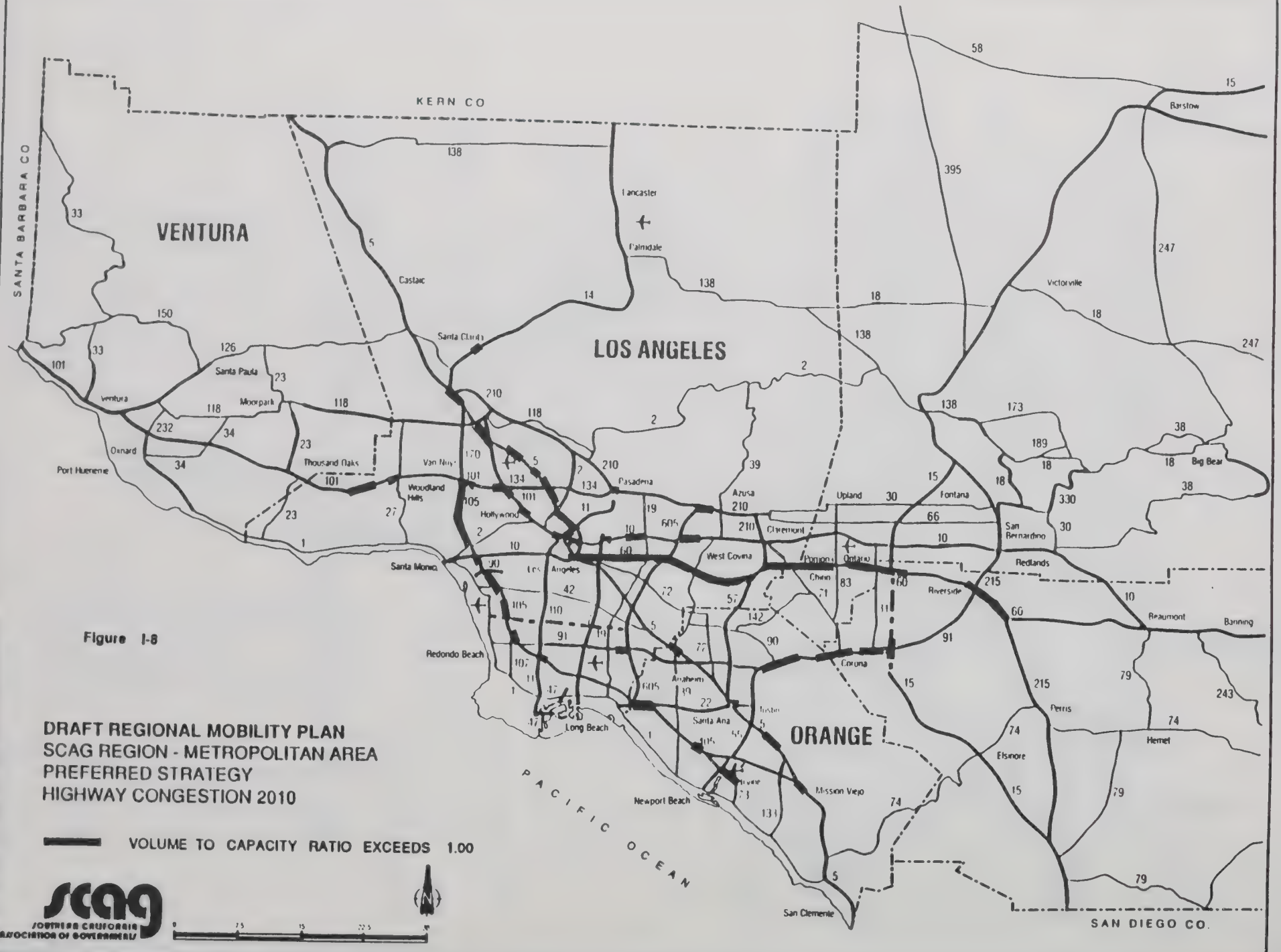

Figure I-8

DRAFT REGIONAL MOBILITY PLAN
SCAG REGION - METROPOLITAN AREA
PREFERRED STRATEGY
HIGHWAY CONGESTION 2010

VOLUME TO CAPACITY RATIO EXCEEDS 1.00

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TABLE I-2
PREFERRED STRATEGY PERFORMANCE INDICATORS

	1984	2010 Without Plan	2010 With Plan
VEHICLE MILES TRAVELED (000's)	221,292	376,187	284,382
VEHICLE HOURS TRAVELED (000's)	6,343	19,575	7,850
HOURS OF DELAY (000's)	629	10,132	899
Percent Delay	10%	52%	11%
SPEED (MPH)			
All facilities	35	19	36
Freeways	47	24	45
MILES OF CONGESTION			
AM Peak	452	2,564	280
PM Peak	856	4,567	612
TRANSIT RIDERSHIP			
Home-To-Work Trips	6.6%	5.1%	19.3%

Long Range Corridors

- Plan for the future through the designation of long range corridors and by establishing a System of Regional Significance. (See Figure I-9)

Because the actions listed above will require more resources than are available or programmed, financial strategies are an integral part of the Plan. While the Mobility Plan strategy is expensive, the costs of losing mobility are far greater.

Financial Strategies

The financial element gives possible sources of supplementary revenue. It shows what additional taxes, fees, assessments and charges would be required to finance the shortfalls in existing and projected funding.

Revenue Shortfall

Table I-3 shows the revenue shortfall in the capital and in the operating and maintenance programs. As the table shows, revenues from existing sources will not cover the cost required to fund the various programs called for in the Regional Mobility Plan. Approximately 72% of the transit capital needs cannot be met with existing revenues, leaving a $31.5 billion shortfall in the transit capital program. Annual operating and maintenance requirements for the transit and demand management programs show large deficits. Only highway operating and maintenance would have enough revenue to cover costs.

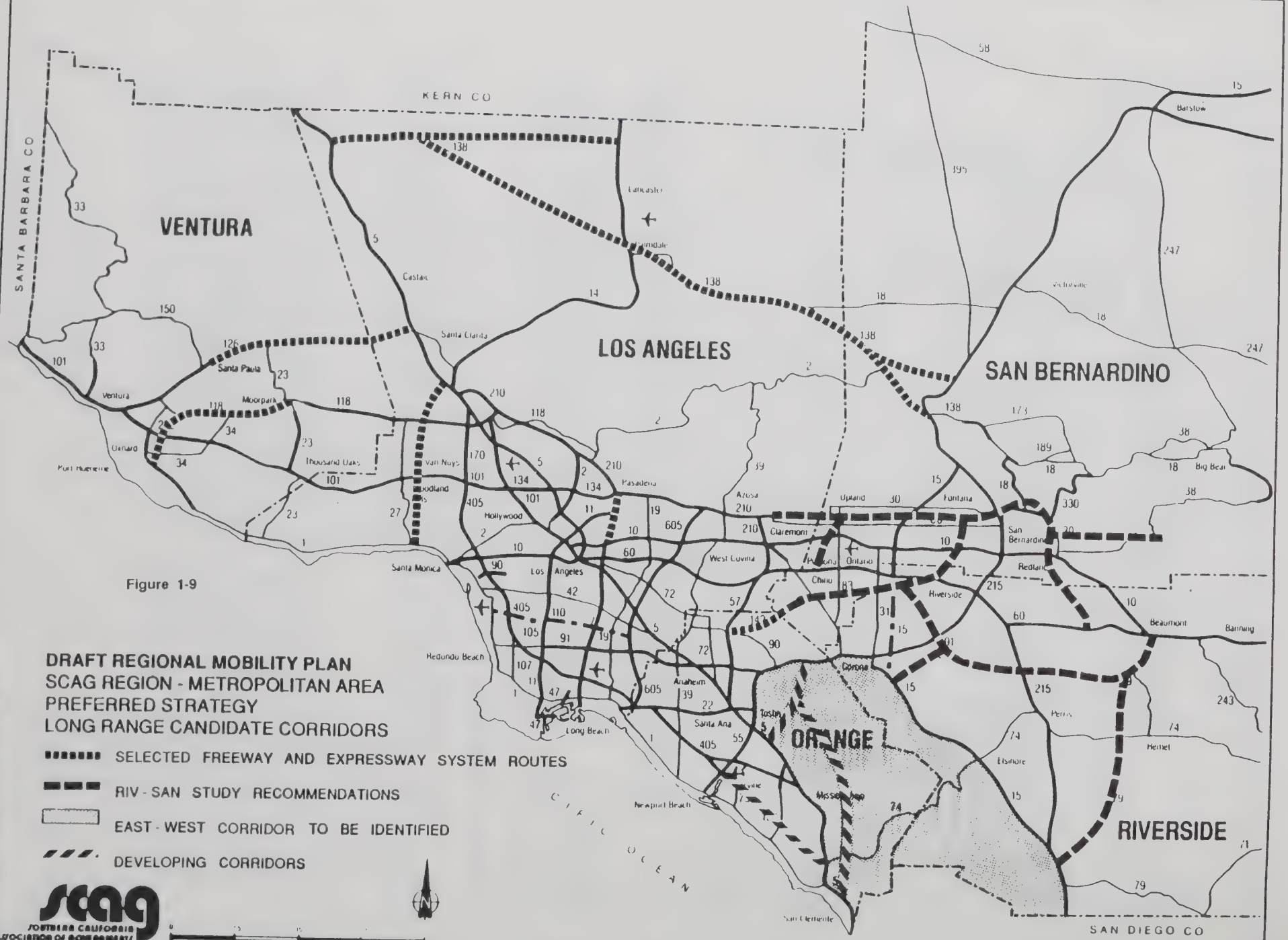
KERN CO
SANTA BARBARA CO
VENTURA
LOS ANGELES
SAN BERNARDINO
ORANGE
RIVERSIDE
SAN DIEGO CO
Barstow
Lancaster
Palmdale
Castaic
Santa Clarita
Santa Paula
Ventura
Oxnard
Port Hueneme
Moorpark
Thousand Oaks
Van Nuys
Woodland Hills
Hollywood
Pasadena
Azusa
Upland
Fontana
Claremont
San Bernardino
Big Bear
West Covina
Ontario
Chino
Redlands
Riverside
Beaumont
Banning
Santa Monica
Los Angeles
Redondo Beach
Long Beach
Anaheim
Santa Ana
Corona
Tustin
Irvine
Newport Beach
Mission Viejo
Lake Elsinore
Perris
Hemet
San Clemente
DRAFT REGIONAL MOBILITY PLAN
SCAG REGION - METROPOLITAN AREA
PREFERRED STRATEGY
LONG RANGE CANDIDATE CORRIDORS
SELECTED FREEWAY AND EXPRESSWAY SYSTEM ROUTES
RIV - SAN STUDY RECOMMENDATIONS
EAST - WEST CORRIDOR TO BE IDENTIFIED
DEVELOPING CORRIDORS
scag
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Figure 1-9

TABLE I-3
REVENUE SHORTFALL
(1987 $ Millions)

CAPITAL SHORTFALL (1992-2010)		O & M SHORTFALL (ANNUAL)	
HIGHWAY	$ 4,900 (34%)	HIGHWAY	-0-
TRANSIT	31,500 (72%)	TRANSIT	1,630 (55%)
DEMAND MANAGEMENT	50 (100%)	DEMAND MANAGEMENT	
		o Ridership Main.	1,510 (100%)
		o Vehicle Operation	100 (41%)
TOTAL SHORTFALL:	$36,450	ANNUAL O&M SHORTFALL:	$3,240

Constrained and Unconstrained Costs

The Mobility Plan has categorized projects into Constrained and Unconstrained to distinguish between two levels of implementation. Those actions and facilities which can be constructed or completed under existing revenue sources constitute the Constrained program. Actions and facilities which cannot be funded without additional revenue are in the Unconstrained program.

The Financial Strategy

Table I-4 summarizes the financial measures to meet the revenue shortfalls in the RMP. Major reliance for increasing revenues would be on user based approaches. In addition to the user charges in Strategy 3, the RMP financial strategy categorizes gas taxes as user fees, and includes congestion charges and tolls. It also would require the removal of the Gann limit on transportation expenditures.

Where necessary, benefit assessments were included which support the jobs/housing policy in the RMP, assessing non residential units in Los Angeles and Orange Counties while assessing dwelling units in Riverside and San Bernardino Counties. Finally, this financial strategy emphasizes flexibility in the use of traditional and non-traditional revenue sources to fund necessary transportation improvements.

Because financing is such a critical aspect to the implementation of the Plan, and because present funding is so inadequate, it must be restated that the entire Plan is built on a series of actions which will require strong leadership in order to bring out the necessary support. Any lessening of the level of achievement in any of the areas will put an added burden on the others to help meet the overall goals, and possibly force a revision if the deficiency is too great.

Table I-4

SUMMARY OF FINANCIAL MEASURES TO MEET REVENUE SHORTFALLS

ITEM	RATE	CAPITAL RAISED ($ million in constant $)	O & M COSTS RAISED ANNUALLY ($ million)
1. REMOVE GANN LIMIT ON TRANSPORATION			
2. INCREASE STATE GAS TAX AND/OR ADD REGIONAL GAS TAX (*)	7c to 16.5c/gal 5.7c	$4,900-$11,340	
3. INCREASE LOCAL (COUNTY) SALES TAXES (*)		$11,880-$16,190	$160
Los Angeles County	0.53% - 0.70%		
Orange County	0.64% - 0.90%		
Riverside County	0.57% - 0.68%		
San Bernardino County	0.55% - 0.67%		
Ventura County	0.90% - 1.04%		
4. PEAK PERIOD TOLLS ON SELECTED FACILITIES (AM AND PM PEAKS) (*)	10c/mile on selected facilities		$50-$4,520
5. PARKING FEES AT EMPLOYMENT CENTERS		$6,480	$1,310
Los Angeles County	up to $8.14/vehicle/day		
Orange County	up to $5.33 " "		
Riverside County	up to $5.60 " "		
San Bernardino County	up to $3.77 " "		
Ventura County	up to $5.00 " "		
6. BENEFIT ASSESSMENT ALONG TRANSIT CORRIDORS		$5,920	$250
Los Angeles County	49c/sq.ft. non-residential		
Orange County	$2.07/sq.ft. non-residential		
Riverside County	$110/dwelling unit		
San Bernardino County	$566/dwelling unit		
7. FAREBOX RECOVERY		up to $50	$1,210

(*) Note: Ranges result from optional approaches to raise capital for Highway Program

APPENDIX E

INTRODUCTION TO THE GROWTH MANAGEMENT PLAN

CHAPTER I

INTRODUCTION

A. PURPOSES OF THE DRAFT GROWTH MANAGEMENT PLAN

The purposes of this report are:

- To summarize the need for, and describe the purposes and objectives of a **Regional Growth Management Plan.**
- To present management alternatives with numerical job, housing and population target allocations and with alternative strategies, and measures for implementation.[1]
- To provide background information and guidance to facilitate discussion, and refinement of the recommended alternative--GMA-4 Modified Job/Housing Balance Alternative.
- To facilitate discussion, modification, refinement and prioritizing of implementation strategies and measures.

B. BACKGROUND

In 1982, SCAG adopted the SCAG-82 Growth Forecast Policy. This forecast was based on the 1980 Census and forecast to the year 2000. In 1985, as a technical adjustment, SCAG-82 was modified--incorporating 1980-84 trends and extending the forecast to the year 2010. This was adopted as SCAG-82 Modified. In the modification, the fundamental assumptions of the previous forecast were not changed.

The Growth Management Plan process has re-examined the assumptions, culminating in the Baseline Projection. The Baseline projects almost two and a half million more people in the region than the SCAG-82 Modified. The regional projection under Baseline was the basis for the various alternative socio-economic distributions, which lead to the development of the recommended alternative--GMA-4 Modified Job/Housing Balance Alternative.

C. THE GROWTH MANAGEMENT PLAN AS A COMPONENT OF THE REGIONAL STRATEGIC PLAN

The Draft Growth Management Plan is part of the Regional Strategic Plan which is a comprehensive vision for the SCAG region. The Regional Strategic Plan sets broad goals for attaining a strong competitive economy; maintaining a favorable quality of life through assuring adequate housing, mobility, infrastructure and level of services; supporting social/governmental viability, cultural vitality and excellence in education; preserving and protecting the quality of the

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1. To serve also as basis for the preparation of the Draft Environmental Impact Report.

environment; securing individual life style options and choices.

The Regional Strategic Plan provides the framework to integrate and coordinate the different SCAG plans. (Growth Management, Air Quality, Mobility, Water Quality, Housing Needs Assessment, Environmental and Hazardous Waste Plans). It also gives direction to the implementing strategies. The Growth Management Plan, by itself, cannot achieve the above mentioned vision and goals intended for the region. The Growth Management Plan strategies need to be implemented in coordination with the measures proposed in the other various plans to assure consistency in the proposed courses of action and attainment of regional goals.

1. Objectives

The Growth Management Plan's objectives are geared to the objectives of the Regional Strategic Plan which are: to provide a common framework for the development and integration of the major SCAG plans[2]; to depict a vision of the region's demographic, economic, socio-cultural, governmental future; to set goals for the preservation of the environment, quality of life and individual options; to define major contingencies which could disrupt that vision and to develop appropriate prevention and response measures.

2. Caveats

A primary purpose of this Draft Growth Management Plan is to successfully achieve a balanced distribution of future jobs and housing in the region. To achieve this balance, care will have to be paid to the following issues, so that new problems won't be created:

- o Provision of adequate investment and renewal in aging or depressed areas that also happen to be job-rich, and designing a system to assure that the needs of these areas are met.

- o Avoidance of a net job loss in this region which could come about by overly restricting employment growth in certain areas (for example ports or airports).

- o Recognition of changing employment patterns as the economy becomes more "fragmented" (with a larger number of small firms) and implications this has upon local governments' ability to affect these decisions.

- o To avoid impacting built-up communities, redirection of just enough housing growth to already built-up areas to alleviate the problems associated with in-commuting, and only to those areas where infrastructure is adequate to accommodate the added housing units.

- o To the degree possible, achieving a balance, by subregion, of the <u>type</u> of jobs with the <u>price</u> of housing.

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2. Growth Management, Mobility, Evironmental and Hazardous Waste Plans, and the Regional Housing Needs Assessment.

- Accommodation of a fair share of low and moderate income housing in areas where job growth will be redirected. A coordinated regional growth management system that incorporates the concept of regional fair share reduces the potential for imbalances of social groups and governmental service costs.

- Avoid creation of a system to achieve job/housing balance which is punitive, legally questionable, or excessively burdensome.

It should be noted that we already have a growth management system in place in many areas of the region. Many of the actions proposed in this report are simply a restructuring of some of the measures currently implemented to incorporate a **regional** job/housing balance perspective.

D. ORGANIZATION OF THE REPORT

The Growth Management Plan, compared to previous "Development Guide" reports, emphasizes trends and the implementation of strategies to mitigate the possible negative impacts of projected growth and intervene, where appropriate, to obtain most beneficial growth patterns. The principal thrust of the growth management alternatives is geared to achievement of improved balance of jobs and housing in each subregion. The report contains the following chapters:

I. Introduction
II. Summary of Baseline Projection
III. Summary of Baseline Impacts
IV. Issues and Policies
V. Contingencies
VI. Growth Management Alternatives
VII. Recommended Alternative
VIII. Proposed Implementation Process
IX. Appendices

E. TIMELINE AND STEPS FOR COMPLETION OF FINAL GROWTH MANAGEMENT PLAN

- Presentation of Preliminary Draft Growth Management Plan to SCAG's committees: March 1988.
- Discussion of Preliminary Draft Growth Management Plan: April, May 1988.
- Approval of the Draft Growth Management Plan's Recommended Alternative by the Executive Committee: June 1988.
- Presentation of Draft Growth Management Plan to SCAG's committees: August, September 1988.
- Presentation of the Draft EIR to SCAG's committees: September 1988.
- Discussion of Draft Growth Management Plan: August, September, October, November 1988.
- Presentation of final draft of the Growth Management Plan to committees for adoption: December 1988.

Note that development of the Draft Mobility Plan and the Draft AQMP measures will be proceeding concurrently on related schedules. The Regional Housing Needs Assessment was adopted in June 1988.